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The Integral

Spring 1922

DEDICATION

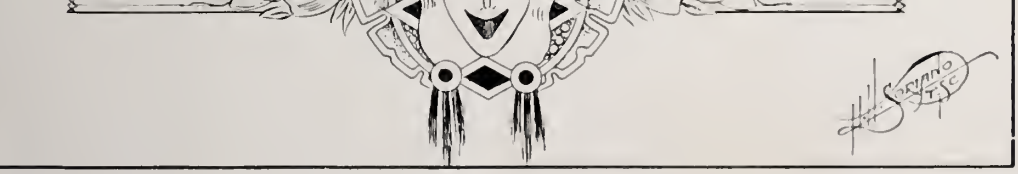
...TO...

A MAN OF GOD, AN EDUCATOR
AND FRIEND OF YOUNG MEN

Our President

Littleton M. Suiff

THIS ISSUE OF THE INTEGRAL IS
AFFECTIONATELY DEDICATED



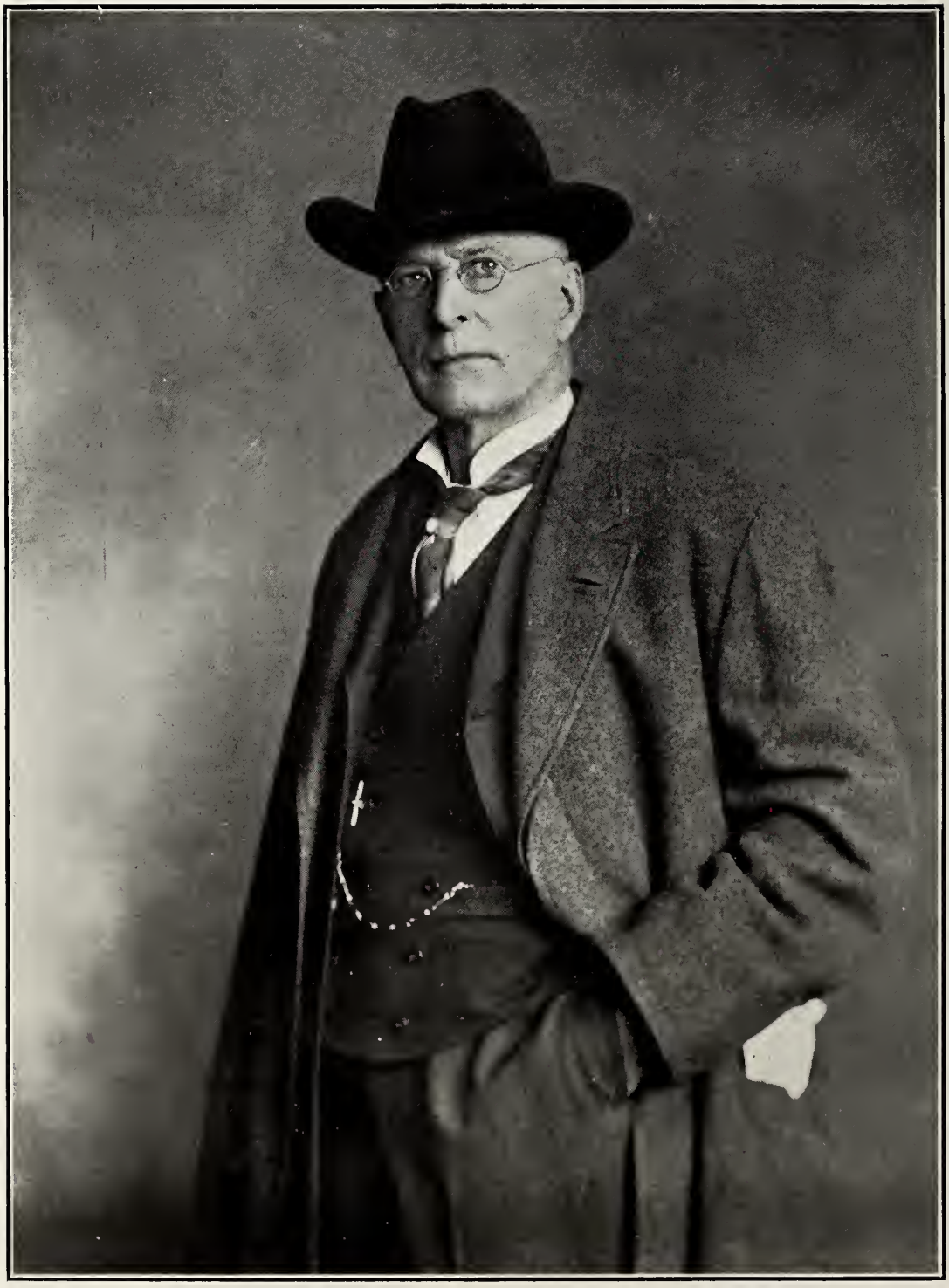
THE INTEGRAL

SPRING TERM, 1922

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PRESIDENT LITTLETON M. SNIFF, A. M.

PRESIDENT L. M. SNIFF

Littleton Moore Sniff was born in Hocking County, Ohio, Nov. 30, 1849. He was the youngest of seven sons. His parents lived on eighty acres of stony, hilly land, which was more of a hindrance than an asset, and even this was heavily mortgaged. In coming to Ohio, they had selected this exceedingly poor land in the hills, rather than the fertile lowland of Southwestern Ohio, because of their great dread of the ague. He attended the country schools, refusing to carry lunch on account of the coarse fare which was all his parents could afford. Persimmon trees grew abundantly there, and on his way home he would club these to get something to appease his boyish appetite. The proudest day of his life was when he got a slate and pencil and began to "cipher".

When about fifteen years of age, he was fired with his first ambition. A writing teacher came into the neighborhood, and organized a class in penmanship. When the boy saw his specimen copy, he determined to write as well as this man. But it took money to join the class, and to purchase the writing material. This his parents could not furnish, so he hired out at grubbing and clearing at ten cents a day to earn the necessary funds. He mastered the art, even excelling the teacher. Later on he paid part of his college expenses by writing calling cards at night. He has written, as he says, over acres of paper, and his free movement has been a great aid to him all his life.

His youthful days were taken up in the hardest kind of physical labor—farming, working in the timber, and digging iron ore. Much time was spent in work that should have been spent in school. His mother was an invalid, and his father lost his sight, so that he and his youngest brother took up the burden of lifting the mortgage from the home farm, and also built their parents a new house.

When talking with other boys as to what his profession for life was to be, he aways said. "I don't know what I will do, but there's one thing I won't do and that is, teach school." But he has, ever since.

He had a teacher who recognized his ability. and finally persuaded him to take a teacher's examination. The examination questions were written on the board, the applicants wrote on them, and their papers were graded then and there. At the close of the day he was handed a paper, but was so excited he couldn't read a word of it. He asked a companion to tell him what it was. "Why, you fool", he replied. "that's a certificate". When he could make it out, he read: "The State of Ohio licenses L. M. Sniff to teach school—", and he was so impressed that the State had recognized him, L. M. Sniff, that he decided to teach. He couldn't get a school that year, but attended a select school, and taught the next year. He turned over to his mother his first year's salary in toto, and she gave him back enough to buy a fiddle and a pair of leather boots.

Among his pupils was a boy who knew grammar, and a girl who knew a little of algebra, unknown quantities to him, for they had been to Lebanon, Ohio, to college. He decided right then that he was going to Lebanon to learn algebra and grammar too.

After teaching two short terms, and working hard between times, he started for Lebanon with little money, but with a consuming desire to learn. In order to save his money, he walked the first forty miles of the trip, running the last few miles, so that when he was seated in the train, the perspiration ran thru the seat onto the floor.

He arrived at school on Saturday, heard one of the Professors preach on Sunday, and was baptized on Monday.

He lived in a miserable room, ate the simplest food prepared by himself, only as much as he thought would keep him going and in some way managed to get thru his course. At the time he completed his work there, one of his professors was starting a normal school at Republic, Ohio, and asked him to teach for him. He accepted this invitation and at about the same time began preaching. At Lebanon he became acquainted with Mrs. Sniff, and they were married during his stay at Republic in 1872. The school was moved to Fostoria, and he went there with it.

His frugal living had made inroads upon his constitution, and he now found it necessary to take some time off, so he went to New Jersey and took physical training and public speaking under a famous Prof. Kidd. He made a successful fight against tuberculosis.

From there he went to Bethany College, where he did some teaching and took post-graduate work. Then he and Mrs. Sniff both taught in a female seminary in Kentucky for a

couple of years. His next move was to Ohio Northern University, Ada, Ohio, where he was head of the department of mathematics for four years.

Just as he was leaving Ada some citizens of Angola interviewed him on the subject of coming to Angola and starting a normal school, to be known as Tri-State Normal College. All these years he had been preaching along with his teaching, and now had decided to give up teaching and devote his whole time and attention to preaching. He accepted a regular pastorate, and had preached a year and a half when he was again approached with a view to becoming president of Tri-State. At the same time, the First Christian Church, of Cleveland, Ohio, was calling him to become its pastor.

He decided in favor of Angola, and came here March 17, 1884. The school had been running eight months. There was only the frame building, with a mortgage of $5,000 and thirty-five pupils. The first term the tuition would not pay the fuel bill.

The hickory tree at the foot of the hill was the only tree on the front campus when he came here. He planted the large elm in front of the College when it was not thicker than your thumb. He either planted, or was present at the planting of all the other trees. Some he grubbed on the other side of Fox Lake, rowed them across in a boat, brought them in and planted them. He has watched these trees growing, seen the other building go up and be filled with thousands of students who have come and gone. He has helped to educate many of his teachers and professors. Small wonder that he so much loves this institution—it is just like his own child!



Tri-State College In The Early Days of President Sniff's Administration

For the first fifteen years he taught from six to eight classes a day, did all the office work alone, and preached every Sunday.

In 1909 he thought it would be best for the school if he were to give up his place to a younger man, one from outside, who would come in free from the memory and hamperings of all the early struggles thru which the school



had passed. So he resigned, severed all connection with the college, and went to California. However, before the year was up, the school had run so far behind in its expenses, and things were going so badly, that all his partners were writing him, requesting that he return, which he did. This means thirty-seven years of continuous service as President of Tri-State College, barring this one year.

President Sniff is, and has been, an idealist. In coming here he had a vision of the school that was to be, and the service he could render. Whatever Tri-State is, and is not, is due to his great faith, coupled with hard and unremitting work. With all due credit to his associates, for without their loyal support he could not have carried on this work, still his has been the dominating influence that has piloted Tri-State safely thru many struggles. It has been no easy task to build and maintain an independent school of this type, with no endowment, and not a cent of help from church or state. Thirty-five schools of about this same character were founded near the time Tri-State was founded, in Ohio, and Indiana, and today Tri-State is the only one that remains. All the others have gone to endowment or have perished, and many of them are now forgotten.

President Sniff is a lover of nature, a great botanist. Without doubt he is more familiar with the flowers of Steuben county and their habitat, than any one else. He can identify the mushrooms that grow in this section, and he knows the birds and their habits, but is not as much of an authority on this latter subject as is Mrs. Sniff. His hobby is gardening, and he makes it a profitable one.

He has been a great hunter, and is unrivalled in this county in his reputation as a fisherman. Folks say if Professor isn't catching fish, none are being caught. He has the true sportsman spirit, and takes great pride in his fine shotgun, reels, rods and fishing tackle.

He is a profound, philosophical thinker, and a great reader, keeping well informed upon all the topics of the times. Up until the last few years he spent some time each year lecturing at teachers' institutes, conventions, commencements, dedications etc. Some of his speeches written twenty years ago seem almost prophetic when read today. He thinks by leaps and

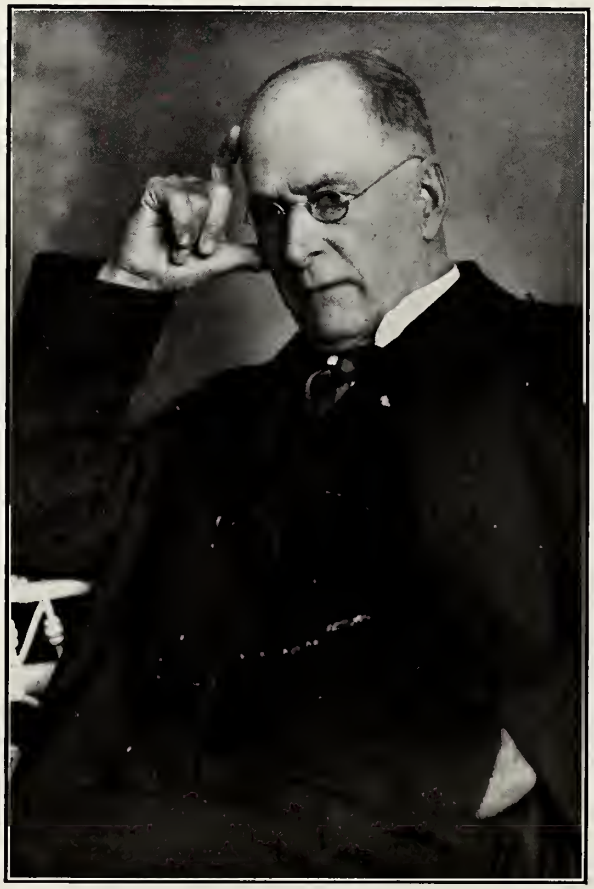


bounds, acts impulsively, but always sincerely, so that it is hard for us who are so near to appreciate his true greatness.

A friend who knew him as a preacher, and who is fully capable of judging, said if he had kept on with his preaching as he had commenced, he would have made such a name for himself as did Henry Ward Beecher. A prominent lawyer remarked recently that he was by far the greatest man who had ever come to this community, and had done it more lasting good than any other.

He has at least built up for himself an enviable record, and is honored and beloved by hundreds of students and graduates the whole world over.

—Mary E. Coutts.



STEAM BOILERS

By M. Browerman, M. E. '22

A steam boiler, although sometimes called "the heart of the plant," is really a dull machine to the average man. If one were to visit a large power plant, he would probably be first shown the Corliss engine with its trim lines or the turbine of seemingly simpler construction. At first thought the uninitiated layman might think that he had seen the best part of the plant. The wise man, however, would know that there was another power behind this great machine and he would ask to be shown into the boiler room. Here he would find a long line of boilers quivering with the energy confined within them and great fires roaring underneath.

In days when steam pressure did not exceed a few pounds per square inch, certain methods of construction were allowable, but at the present time when steam pressures are often carried as high as from 100 to 250 pounds per square inch, the strictest attention must be paid to every detail of design and construction.

Safety is the most important requirement of a steam boiler, in so far as danger from explosion is concerned. If the energy of a large shell boiler under pressure is considered, the thought of the destruction possible in the case of an explosion would impress one with fear. The late Dr. Robert H. Thurston, Dean of Sibley College, Cornell University, and past president of the American Society of Mechanical Engineers, estimated that there is sufficient energy stored in a plain cylinder boiler under 100 pounds steam pressure to project it to a height of over 3½ miles.

Boiler Horsepower

The term "boiler horsepower" is misleading, in that a boiler does not develop power but simply acts as a means for absorbing heat energy in one place and transferring it to the engine or turbine, depending upon what kind of a prime mover the plant possessed. When the original boiler horsepower unit was selected a one horsepower boiler would supply a one horsepower engine. The increase in the economy of the engine, has changed the ratio until now a 100 horsepower boiler will supply an engine of 75 to 300 engine horsepower. Any modern boiler will run continuously at from 150 to 200 per cent. over its rating and for short periods 400 and even 500 per cent. having been reached. Thus the term has lost much of its significance.

Boiler Requirements

In designing a steam boiler there are many considerations that must be kept in mind. Among the most important are strength, durability, capacity to furnish the required amount of steam, convenience for cleaning, repairing and inspection, simplicity in detail, and economy both in running and first cost.

General Requirements

I. Workmanship. Boilers should be built by expert workmen. The material and construction of every boiler should conform with the rules and regulations issued by the highest authorities.

II. Sufficient area of grate to burn the required amount of fuel. This item is important in determining the capacity of a boiler, although related indirectly to its efficiency.

III. Combustion chamber and flue area large enough to completely burn and carry off the products of combustion. Formerly certain proportions of the grate surface were allowed for the cross-sectional area through or around tubes, but the results were only accidentally correct. With proper operation, the kind and weight of coal to be burned per hour determines within reasonable limits the weight of gas produced per hour. The volume of gas depends upon its temperature, and the rate of decrease of temperature from furnace to stack has been determined by experiment for certain boilers. The velocity of this gas depends upon the draft and upon frictional resistance, all of which can be valuated with fair accuracy. The volume and velocity being known, the cross-sectional area necessary for gas passage can be calculated.

IV. Steadiness of Water Level and Circulation. Water will be carried off with the steam from inadequate liverating surface and occurs, consequently, in many vertical boilers having the water level below the tops of the tubes. Drums should not be too small or else slight variations of water level may carry it rapidly below the danger line. Good circulation is important. It reduces stresses arising from differences in temperature, discourages the ac-

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THE MANUFACTURE OF COMMERCIAL AMMONIUM NITRATE

By Frederick G. Huxster Chem. Eng'r. '22

In the following paragraphs a brief outline of the chemical operation, system, outfit and equipment is given in the manufacture of the commercial product, ammonium nitrate, so largely used in the late World War. One of its principal uses was in the manufacture of explosives of which a very high percentage was used in the low grade powders.

The method which I will describe involves the process using nitric acid and ammonium liquor, thus: $HNO^3 + NH^4OH = NH^4NO^3 + H^2O$. A system of this kind on a munition plant or in combination with a nitric acid plant where weak nitric acid is to be had, affords a ready and profitable means of disposing of the weak acid, which is most generally hard to do. An acid of from 40 to 60 per cent. is used, strong acid not being as satisfactory as weak acid, as will be explained later.

The ammonium liquor is attained from illuminating gas plants, shipped in tank cars and unloaded to storage tanks. Also the more pure cyanogen ammonia is largely used. The last mentioned has proved very satisfactory and can be used direct, that is, without converting to a gas.

There are three main buildings necessary for the operation, namely, the neutralizing house, ammonium liquor storage and evaporating sheds, and crystallizing house. The neutralizing house in size is about 40x40 feet, crystallizing house about 30x50 feet, and sheds according to number of evaporating pans and storage tanks. A plant with system to be described has a capacity of output about 40,000 to 50,000 pounds per day when working full time.

The Neutralizing House

In the neutralizing house the acid storage consists of six acid proof earthenware pots of 1,000 liters each, capacity. Two scale pots of same size are used to weigh the acid, and are filled by gravity. From these the acid is drawn out as needed into the neutralizing tanks, 500 pounds being amount drawn out at a time. The ammonium liquor enters into a scale tank, 4,000 pounds being used as a charge in a still. By air pressure the ammonia is forced into the stills. The stills are vertical steel tanks about 10x4 feet and fitted with a steam coil. Two stills are used and filled alternately, giving more equal pressure and an even flow of gas all the time, as when a still is cooking off or during the last half of the run very little gas is given off, but by having the other one fresh it equalizes the capacity. Usually the gas from the oldest one is run into the other and then thru the system, or they may be run separately. A few pounds of Na^2CO^3 put into a still just before charging aids in giving complete distillation. Care must be taken in adjusting the steam inlet to the steam coil as in raising the temperature steam will be coming over with the gas, filling up the cooler with water and causing trouble in the operation. More steam is necessary near the end of the run. In testing a still to find out if distillation is complete, a samll quantity is drawn out and by the sense of smell an experienced operator can determine the proper time to discharge. The bottom of the still is opened and water run into the sewer. A charge of 4,000 pounds usually takes about four hours for complete distillation.

From the still the gas enters a cooler, scrubber and then enters the neutralizing tanks. The cooler is nothing more than a small tank about 4x4 feet and fitted with a water coil. The scrubber is another tank about the same size containing coke which acts as a filter and purifies the gas. The neutralizing tanks are of steel construction about 8x6 feet in size and are lined with acid proof brick and planked over.

The gas line from the stills are six inch steel pipe which enters the tanks at the top and is connected to a spider line or distributor. This is small pipes connected to a central, extending in all directions and having small holes all around. This sets on the bottom of the tank and the gas coming up thru the liquid is absorbed and neutralizes the liquid.

The liquid in the neutralizing tanks is always kept on the acid side, that is, not allowed to come neutral, until nearly full or until just before the neutralized liquor is wanted. The condition is determined by the use of methylorange test papers (made from absorbent paper soaked in methylorange solution and dried). The operator dips a stick down into the liquid and drops a drop on a piece of the paper and can tell just when to add more acid. Just before neutralizing a tank full, air is used in the distributor to agitate and stir up the whole quantity insuring an even neutralization. By adjustment of the valve when the neutrali-

zation point is reached the operator shuts off the valve and makes several tests of the liquid to get it exactly neutral. A neutralized solution being called right when .5 c.c. of solution of N-10 H^2SO^4 acidifies 100 c.c. of the liquid. When right it is pumped to the crystallizing house storage tanks. These are about 5x6 feet anl three or four in number. In neutralizing, the temperature is not allowed to run up over 125 degrees F., as some of the gas will then pass thru and be lost. Strong acids greatly raise the temperature, also retarding speed of operation thereby a disadvantage to use strong acid.

Each tank is connected to a tower, which is constructed of sewer tile about 2 feet in diameter and reaches the full height of the building. These towers are filled with small cylinder shaped, earthenware bafflers about 4x4 inches in size. A small stream of water is let run in at the top and a pulsometer used as a pump keeps up a circulation running in at the top and being fed from the bottom of the tower. This water is kept acid to catch any ammonia fumes which might escape from the tanks. The overflow from the bottom of the tower goes into the tank. A steam jet at the top of the tower produces a suction thru the tower thus carrying all fumes from the tanks thru it. Also the acid storage and scale pots are connected together by means of glass tubing and the end connected at the bottom of the tower. This catches and draws all the HNO^3 fumes thru the tower acidifying the water an dsaving loss of nitric acid.

The Crystallizing Department

The ammonium nitrate liquid is stored in steel tanks above the evaporating pans, thus they are filled by gravity. These pans are about 9x4x3 feet in size, made of cast iron and fitted with 9 4-inch pipes running lengthwise as a steam coil. Two air pipes with holes drilled thru make agitators which make evaporation more rapid. Each of these pans hold about 4,500 pounds of the liquid. Four pans are used Evaporation takes about two to three hours, having steam pressure of 115 pounds. To make ammonium nitrate having large crystal line form the temperature is raised to about 300 degrees F. For a fine product similiar to flour the temperature is raised to from 265 to 270 degrees F. Of course this is crystallizing temperature. To get this an iron ladle full of liquid is taken from the pan and stirred with the thermometer until it crystallizes. A certain temperature will be noted when it will hold a certain degree for a short period of time. This is the crystallizing temperature.

Another point to be considered is the acidity. Due to the high temperature in evaporation the liquid turns slightly acid. This is tested by taking a small portion of liquid and with methylorange as an indicator neutralize with N-10 NaOH. If found too acid a few pounds of Na^2CO^3 is thrown into the pan and after a few minutes again tested. A skilled operator gets within .02 acidity on the product.

From the evaporating pans the liquor is drawn by gravity into the crystallizing house and crystallizing kettles. These kettles are made of cast iron, round in shape, 5 feet in diameter and about 18 inches in depth. Each is moulded with a water jacket around them to cool the ammonium nitrate liquid, and turn ing out the dry crystalline form of ammonium ntrate. Two plows scrape the bottom and sides and revolve around keeping the ammonium nitrate stirred up until dry. The finished product is taken out at a temperature around 160 degrees F. The machinery necessary to operate the revolving plows for three kettles takes about a 30 H. P. motor. A batch of about 1,500 pounds is dropped into each kettle. Time for cooling takes about one and one half hours. It is then shoveled out into barrels.

Samples and Records

In order to keep an accurate record of the operation and to be able to calculate the yield, it is necessary to take samples of the material used. The acid samples are taken in glass stoppered bottles, and the ammonium nitrate samples are taken in small corked bottles.

There is a sample taken for every scale pot of acid used, one for each scale tank of ammonia put into the stills and one of the residue after distillation. A sample of the neutralized liquid just before leaving the neutralizing house is also taken. In the crystallizing house a sample from each kettle full of the product is taken. All samples are labeled, numbered and dated. The samples are all taken to the laboratory for analysis. The acid and ammonia are run for per cent strength as this is part of the basis for calculating the yield. The finished product is run for acidity, chlorids, sulphates, moisture and purity. A record of the operation is kept at all times. Complete data as to the performance of the func-

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THE WIRELESS TELEPHONE

By Harold W. Bower, E. E.

We have heard a lot about the various ages thru which civilization has passed. Centuries ago there was the Stone Age, and in later years science has known the ages of Steam, the Aeroplane, and the Electrical Age. Now we have come into what might be called the wireless age.

The means of communication by air is not a new thing, having been used by the Spaniards as early as the year 1795, although in a very crude way.

The first experiment was performed in 1811 by Sommering of Munich, who employed, dispersion of leakage method.

The next step in Wireless Telegraphy was taken in 1838 by Steinhill, who accidentally discovered that by grounding one wire of a telegraph instrument a message could be transmitted thru the air with one wire. Up to this time Morse had been using two wires, thereby having what is called a complete metallic circuit. He succeeded in establishing communication between Castle Garden, New York and Governors Island, a distance of about one mile.

About the year 1866, Dolbear of Tufts College, Massachussetts, produced the first wireless telegraph that worked without a metallic connection. He used the electrostatic method by means of which he was able to transmit and receive messages between stations located about one half mile apart.

In the year 1896, however, Marconi brought out a new system in which he made practical application of certain well known principles, which were first stated in 1845 by Faraday in his theory of the Electromagnetic origin of light. This theory was mathematically proved correct in 1846, by Maxwell, but its physical demonstration did not occur until 1888, when Hertz, by a series of brilliant experiments not only proved the electric waves conformed to the same laws as light wavs, but also showed how they could be produced by purely physical means, and furthermore, how to detect their presence when thus produced.

The first message ever transmitted and received across the sea was accomplished by Marconi in 1902.

Though the apparatus was very crude and still in the experimental stage it was accredited as being the first feat of that kind accomplished up to that time.

In 1908 transatlantic radio stations were opened for business. In 1912 the principal nations of the world enacted laws requiring passenger ships to carry wireless equipment and operators.

The first wireless telephone message was sent from Washington to Honolulu, a distance of 5,000 miles. This was accomplished in the year 1905. The transmitting apparatus was a telephone transmitter electrostatically connected in the ground circuit of a high powered Poulson Arc transmitting set.

During the World War wireless telepraphy was largely responsible for the directing of all U. S. ships, by means of the large Naval station at Arlington, West Virginia.

The wireless compass also came into use during the war, by means of which ships that had lost their bearings were able to find their true course and proceed thereon.

Wireless telegraphy and telephony have slowly advanced from the experimental stage so that today there are approximately eight hundred thousand amateurs and they are greatly increasing in number every day.

The principal newspapers of the country are installing broadcasting stations by which speeches, stories, market quotations and music from noted singers and musicians are heard in the many thousands of homes equipped with receiving apparatus.

Radio has a wonderful future, but in a limited field. Its settlement depends on the settlement of problems that business men and legislators have never before considered.

Everybody cannot use the air to advertise some special line of business or popularize some particular hobby. So it is a question in Washington at the present time what will be permitted and what will be barred.

The question we will soon be facing is, who will bear the cost of broadcasting the various features of news, education and entertainment?

Before long the radio audience of the United States and Canada will be the largest audience that can be reached by any one instantly and simultaneously.

It is perfectly plain that the air cannot be sold to any individual or corporation for so many dollars, to use in any way and for any purpose the purchaser desires.

Advertising matter in newspapers and magazines are censored by the Post Office authori-

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COAL TAR

By C. R. McNeill, Ch. E. '22

In the manufacture of coal gas, coal is placed in the vessels or retorts which are then heated and the coal decomposed into coal gas, coal tar, ammoniacal water and coke. The coal tar is run into a tar well where it remains until it is disposed of to the tar distillers.

The tar is removed from the wells and delivered to the distillery where it is placed in large storage tanks. In a number of works these tanks hold nearly one million gallons. The tar is allowed to remain in the wells until the excess of ammonia water has risen to the surface.

Coal gas was first manufactured in 1798 at Soho, Birmingham, England. About fifteen years later the first public gas house was erected in London. Two products of these gas works—ammoniacal liquor and coal tar—gave considerable trouble to the early proprietors who were compelled to go to the expense of disposing of these troublesome materials.

With the increase in gas making, there was a proportional increase in the production of tar and it became necessary to find some use for it. In 1838 Bethell discovered the oil creosote in coal tar and found it to be an excellent wood preservative. About seven years later Hofmann discovered the presence of benzene in tar and later Mansfield prepared large quantities of it in a profitable manner. The first aniline color was found in 1856 and within the next few years the value of coal tar had reached such a point that the byproduct coke ovens were introduced.

Coal tar is an oily liquid, varying in specific gravity, viscidity and composition, according to the type of retort, temperatures of the distilling apparatus and the variety of coal used.

When tar is submitted to destructive distillation, a large number of chemical compounds are obtained. Among these are toluene, benzene, the xylenes, antharcene, carbolic acid, napthalene, the cresylic acids and pyridine.

Tar was formerly employed in almost its original form for the purpose of painting iron or steel structures. At the present time, however, this is not done, as it wastes many valuable materials which do not aid materially as protective agents. A little creosote oil, added to the pitch while hot, is usually used for the purpose just mentioned. Partially distilled coal tar, that is tar from which all the ammoniacal liquors, napthas and oil containing carbolic acid have been removed, is used for road treatment.

A tar prepared in a similar manner is employed in the manufacture of roofing. In the preparation of this material a special kind of felt is passed through the prepared tar. The felt, which must be dry, is slowly unwound from a roller and passed through the tar. In coming out, it is passed between two rollers which press the surplus tar out. The felt is then sprinkle with grit, cork or some other suitable material and wound on another roller from which it is taken ready to sell.

A great many materials received from the distillation of tar are used in explosives, dyes, paints, varnishes, drugs and the rubber industries. It is not to be thought that the distillates are ready to be used for the purposes just mentioned. They must be subjected to various processes to prepare them for the many uses.

The residue left after distilling is known as pitch. It is employed in a great many industries, large quantities being used in the manufacture of briquettes and as road binders. Soft pitch is the best binder and is used in the pitch-grouted macadam roads. Moderately hard pitch is used in the manufacture of black varnishes. It is also used for lining cupalos, etc., around steel works.

The largest fraction in the distillation of coal tar is creosote oil. This is usually over 18% of the tar but varies from 9% to 25%. Creosote has a reddish-brown color and a noticeable odor. This oil is used most extensively in wood preservation, the United States alone used 88,968,666 gallons in 1916.

There are several processes used in wood-treatment but the Boulton process is a more widely favored. The timber to be treated is placed on a truck and pushed into a large cylinder. This cylinder is made airtight and a vacuum produced which removes considerable water from the wood. The vacuum is destroyed in about an hour and creosote oil is pumped into the cylinder at a pressure of between 110 and 170 pounds. This pressure is maintained until the timber has absorbed the required amount of oil. The pressure is then released, the oil drained off and the truck run out. The amount of oil taken up by the timber varies

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AGE OF WATER POWER DEVELOPMENT NEAR

By M. D. Miranda, M. E. '22

Those who look into the future with prophetic eyes predict that an age of water power is dawning. They point wisely towards the great water power developments already completed or in course of construction all over the world, from the rivers of Maine to the canyons of California, from Alaska to Argentine and from Kashmir Valley in India to the outlet of Victoria Nyanza in Africa. And they back up their arguments with the statement that coal will be exhausted early in the next century and the mineral oil and natural gas will vanish with the coal.

Amid all this prognosticating and arguing arises a host of questions about this water power which is to keep us from freezing in the next century, to turn the wheels of our industries, to prepare the food and to run our vehicles.

Every stream of running water, from the trout brook sporting through the farm meadows to the largest rivers, is capable of producing more or less power. A hundred years ago, when steam power was still in its infancy, water power was quite extensively developed in this country, but the steam engine, with cheap wood and coal fuel, quickly reached the practical stage and the old "over shot" and "under shot" water wheels were abandoned. Up to a few years ago it was not practical to develop most water power because this power had to be utilized on the spot and very naturally the very best water falls were located in the wilderness, scores of miles away from the seaports, the railroads and the cities which needed it. But the development of the electric transformer changed all this and made it possible to transmit this energy for hundreds of miles without serious loss.

The power of water is greater than any one without experience can imagine. For many of us have, when in swimming, struck the water a sharp blow with the flat of the hand, or, when learning to dive, struck the water flat, instead of head first, only to learn that the liquid offered considerable resistance.

A stream from a fireman's hose will knock a man down. The jet from a nozzle in placer mining in the west eats away a large piece of land in a day and toys with great boulders as if they were pebbles.

Water power represents heat energy. The water is drawn up into the clouds by the heat of the sun and deposited on the distant mountains in the form of rain. This water spends this acquired energy in racing down hill, back to the sea. Water wheels are but devices to catch and utilize this energy which ordinarily is wasted on the unmoving rocks and stones. Water acts as a moving power either by its weight, which is over sixty-two pounds to the cubic foot, or by its pressure or impact. The power of a fall of water is equal to the weight of its volume and the vertical height of its fall. To compute the power of falling water it is necessary to multiply the volume of flowing water in cubic feet per minute by its weight, 62.5 pounds, and this product by the vertical height of the fall in feet. Thus a stream of water when flowing over a weir five feet in width by one foot in depth and having a fall of twenty feet develops 37.91 horse power.

So important is the development of water power in this country that the General Electric Company and other large electrical concerns maintain a large staff of engineers whose duties are to examine prospective water power developments for enterprising men who plan to harness the rivers and streams.

No matter how many
Hard berries you earn
To take you to college
To study and learn;
No matter how many
You've got in the fall,
The dear little co-eds
Will go through it all.

GASOLINE

By Forrest Linquist, C. E. '22

The ever-increasing popularity of motor vehicles, during recent years, has made the production of gasoline a very important subject. There are many methods of manufacture in use, but to date, the most satisfactory are the compression, absorption, refrigeration, and charcoal processes. The method, which I shall discuss is known as the absorption process.

This is by far the cheapest plant to build, has a small overhead cost, gives good productive results, and can be altered to suit certain localities.

Absorption, by definition, is the process of taking up or taking in. This is exactly what happens in this style plant. Natural gas, which is produced by the decay of organic matter, and which is confined in large cavities several thousand feet beneath the earth's sur-



face, contains many molecules of gasoline. During its upward course to the surface, as it strikes different stratum, where oil streams are confined, more gasoline is added to its body. Finally at the surface and treated correctly all the gasoline is separated from it, by absorbing qualities of certain oils.

To properly explain this process, we must divide it into three general heads, the gas, the absorbing oil, and finally the gasoline itself.

The gas cavities are tapped by drilling a hole from the surface, and the flow is controlled by suitable apparatus. From the fields, under enormous rock pressure, it is conveyed by pipe lines to the plant, where a regulator reduces the pressure to 200 lbs. before admittance to the absorbers. Those are long steel cylinders, partly filled with some oil of good absorbing qualities. The gas enters thru perforated pipes at the bottom of absorbers and then bubbles up thru the oil, losing gasoline content, is then



allowed to escape from the top of the absorbers, and passes on to be used for other purposes.

We shall now consider the oil. A grade known commercially as "mineral scale" is used with fine results. It is a light yellowish colored liquid of about 37 degrees Be. gravity. The supply in the absorbers is kept replenished by pumps connected with storage tanks. When the oil rises to a certain level, it is automatically discharged thru a trap to large tanks. From here it is picked up by low pressure pumps which force it into steel, cylindrical shaped stills, where it is subjected to the action of live steam. As the oil is heated gasoline vapors leave it, going thru a dome in the top of the stills to the condenser box. The remaining oil is sent back to the absorbers for a fresh charge, and so completes the circuit.

The gasoline itself now compels our attention. It is drawn thru coils in the condenser



box by means of a vacuum produced by a duplex compressor. Cold water is circulated

Continued on page 51

CONDENSED, DEHYDRATED AND DRIED FOODS

By Monroe E. Beverly, Ch. E. '22

During that period of destruction over there and conservation over here, many of the old time customs and industries were re-established. One of the most important to the merchant and farmer was that of preserving food by the extraction of the moisture. (Drying or Dehydrating.)

This process of drying gives a means of preserving food for storage possessing some great advantages over canning, for it diminishes bulk and weight. The food value is concentrated and the preservation is secure. There is another advantage that pertains to the transportation for in one hundred pounds of fresh vegetables or fruits there is never less than 70 per cent. moisture and in some cases it gives as high as 90 per cent.

The varying in the per cent. of moisture is responsible for the different kinds of food. e. g. Evaporated food is generally understood to be the result of driving off only a part of the moisture: condensed food is a semi-solid product containing less moisture than the evaporated, and the Dehydrated or dried foods contain only about two per cent. of moisture. There are two methods used for dehydrating foods. They are the natural method and the mechanical method.

The first method depends upon the sun for its heat and is very impracticable for use today due to the great amount of time necessary. This method as shown by records dates back to the time of the early Egyptians and has been in vogue ever since. The Indians used it in preparing venison in the early history of this country.

The second method depends upon artifical heat waves and has been developed to a very high efficiency.

There have been hundreds of patents put forth for Evaporators and Dehydrators but the majority fell amiss because of the tremendous cost of maintenance. In all cases, the principle was practically the same. Those that are in use now are the Drying Compartments, Tunnel or Progressive Drier, Drum Cylinder or Roller Driers and the Vacuum Drier. Of these types, the Roller Drier and the Vacuum are most generally used. The Roller Drier for fruits and the Vacuum for liquids.

The Roller Drier is made up of one or more internally heated cylinders. The food is placed upon the cylinders and the heat applied. As the cylinders rotate the food is kept continually in motion and the drying process is completed in a very short time. The actual time required varies from five to twenty-four hours. To obtain the best result, it is necessary to introduce humidity along with the heat waves. This keeps the exposed surface soft and permeable and allows the moisture to leave the interior part more easily. The range of temperature employed in evaporating fruits or any food stuff is between 100 and 180 degrees F., usually the lower temperature is used at the start and gradually raised until the higher is reached. As the temperature never rises above 212 degrees F., none of the food value is lost.

There is much to be done, however, in the way of preparation of the foods. For example let us follow an apple through the plant. All the other kinds of foods will have to be prepared in the same way.

The apple is delivered to a storage bin from the platform and from here, by means of a trap door it is let fall into the washer. From the washer, it is conveyed to the grader where the sor'ing is done. It leaves the sorter and is conveyed to the storage tank which feeds the delivery tube leading to the trimming, peeling and coring table. With this operation completed, it goes to the bleacher. Here it is moved slowly through sulphur fumes where it is bleached. From here it goes to the slicer where it is made ready for the drier. At the drier, the sliced apple is spread upon trays and the moisture is carried away by the hot-air currents. When dry, the apple is carried to the curing chamber where it loses the moisture formed by the sulphur and from here to the packing room where it is put in wooden or paper boxes and made ready for shipment.

The waste products of the plant are used in making vinegar, fruit juices, jellies, scratch feed for hens and chickens, and fertilizers.

The growth of this industry in the last few years has been very rapid. During one year of the war period, the number of plants increased from 246 to 2,500.


I See Something
Stitch in time

THE INTEGRAL

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EDITORIAL

This issue of the Integral has been dedicated to our President, L. M. Sniff, thru whose efforts it has been possible for us to attend this institution.

The articles contained herein, we hope you will find interesting, especially those on the life of L. M. Sniff, and Commencement.

The work begun by the previous staff of keeping a record of all the data, has been taken up by the present staff, and we hope will be carried on in the future.

We are endeavoring to have the Integral entered as second-class matter. In order to do this, it is necessary that we have a large mailing list. The Alumni have been notified and our plan explained. Success in this matter depends on whether or not they are still interested in their old friend, the Integral.

This is my last opportunity to thank the members of the Engineering Society for their contributions. Miss Graham, who typed all the material, deserves the utmost praise. To my faithful staff, my heartfelt thanks is extended.

The paper is now turned over to the students and friends of Tri-State College.

JAMES PETTIGREW,
Editor-in-Chief.

OUR STUDENTS

As one may peruse the various interesting technical articles contained in this issue, one would wonder if such information, therein contained, was obtained in detail during their stay here at Tri-State. No indeed such practical details are not to be learned in college, but in that practical and austere school of life.

Tri-State students are for the most part men who have been employed in the various branches of engineering, and who, realizing their limitations in their respective fields, were desirous of raising themselves above the standard of purely practical men. They have been in a position to use and observe the phenomena upon which all engineering depends. They have come now to learn the reasons for, and the laws governing these phenomena. Shortly our men will return to that school of life whence they came, not as students and followers, but as teachers and leaders.

It is an enviable education that a Tri-State man may obtain from these boys, who can discuss the hardships of an engineer in the swamps of Lousiana or the mountains of South America, or who can tell of the climate in the Philippines, business and characteristics in the Orient or of conditions in ships or laboratories of the cities.


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PRESIDENT L. M. SNIFF—AN APPRECIATION

Forty years ago a handful of earnest, well-meaning men, anxious to afford the young people of this community the opportunity of higher education, organized Tri-State College. It did not take many months to convince these men that something more than a campus of wild wood, a frame building or two and a corps of teachers was necessary to establish a school, and failure loomed ahead for the enterprise. As if in answer to their yearning, within a short time Littleton M. Sniff came to the school from an Ohio college. The founders gladly turned over to him the care, sustenance and rearing of this infant educational offspring. Since that day he has been the directing genius of the institution. We use the word genius designedly, for an institution which, from such a meager beginning and with really insignificant material aid from without, has overcome all but insurmountable obstacles and grown into a place of influence reaching into every corner of the world, while its contemporaries under like circumstances have all fallen by the way, can be but the work of a master mind. The wonderful record of Tri-State College speaks the truest encomium for President Sniff.

The influence of his work in this community is immeasurable, in material, educational and spiritual ways. This community has been a far better place in which to live because of his work and that of his associates, and the ever widening circles of this influence can now never break.

One can envision over the portals of this edifice which the life work of Mr. Sniff has builded here, these words: "Know the Truth, and the Truth shall make you free," for that seems to be the dominating principle of his life. To this law he has been as loyal as to the laws of the mathematics he has so ably taught. He came to the school with certain fixed principles; he adheres to those principles today. He tolerates no sham, has contempt for the superfluities of life, hates the hypocrite, but loves the truth and is loyal to it. To him life is real and life is earnest. There is no royal road to learning, and the mind of the child becomes the mind of the masterly man only through hard discipline.

One who stands unyielding for these truths today must stand almost apart from the easy going world of the age, and is apt to be misunderstood and to be set down as austere and harsh. Together with this fact, President Sniff has been confronted every hour of these forty years with great cares and problems of the work in which he has been engaged. Yet, withal, those who have been intimately associated with him have found him a man of most delightful and agreeable personality. No man can love nature as he loved her every manifestation—the birds, the flowers, the woods, the streams—without an ardent love for her noblest work. Indeed he has had a passion for men, and that more than his indomitable energy is his greatest attribute, and the one that has made him a great man. The thousands of letters he has written personally to young men showing how an education for them was possible; the countless hours he has spent in planning the way for them, and the midnight vigil he has kept to counsel them into lives of greatest usefulness, measure in a small way the great love he has for men. It is a happy fact that hundreds of these are not forgetting today to return gracious praise and thanks to him for the great help they received from him.

This is the great monument President Sniff has builded for himself, not only in the community but into the great wide world, and when his days of usefulness shall have ceased it will continue to grow and become greater through eternal ages.

The Engineering Society



President Harold Perry
Vice-President Charles Miller
Secretary Marie S. Berry
Treasurer William Blakely
Corresponding Secretary Harold Wiers
Sergeant-at-Arms John Skole

When we finish our work here at college and start out to commercialize that which we have obtained along engineering lines, what are we going to expect, a swivel chair or the old hard wood stool? Most of us, I dare say, need not worry much about mahogany desks for a long while.

It might seem a bit unjust to ask one who has equipped himself with an engineering education by the great expenditure of time, money and effort, to start down almost at a laborious level, but the fact is we are not yet engineers—far from it. We have merely prepared ourselves that we might LEARN and FOLLOW one of the branches of engineering as a professional engineer. We have yet to serve an apprenticeship and by experience obtain that which will qualify us as engineers—capable of being entrusted with work upon which may rest the very lives and fortunes of others. The lower we start and the more underlying the facts we uncover regarding our work during our apprenticeship, the more valuable we may consider ourselves and the higher we may expect to arise.

Experience is a hard and costly teacher from which we cannot escape though we have best prepared to meet by equipping ourselves with a modern education.

I wish to take this opportunity to thank the speakers for the unusually interesting and instructive talks of this term. I also thank the members of the Engineer's Band for their services rendered and compliment them upon their splendid work.

I feel greatly indebted to the officers and committees who have worked hard to make the Engineering Society a success this term and I wish to thank them for their untiring support.

H. S. Perry.

WHATEVER YOU ARE

If you can't be a pine on the top of the hill,
Be a scrub in the valley—but be
The best little scrub at the side of the rill;
Be a bush if you can't be a tree.
If you can't be a bush be a bit of the grass,
Some highway to happier make;
If you can't be a muskie then just be a bass;
But be the liveliest bass in the lake.

We can't all be captains, we've got to be crew
There's something for all of us here;
There's big work to do and there's lesser to do,
And the task we must do is the near.
If you can't be a highway, then just be a trail;
If you can't be the sun, be a star,
It isn't by size that you win or you fail—
Be the best of whatever you are.

—Selected.

THE GRADUATING CLASS, 1922

By Prof. W. O. Bailey

The Editor of The Integral has asked me to write something about the graduating class of this year. It is an item of interest to any community to know that some one has the perseverance to complete any course of study, for it is no little thing to be able to win such a significant victory. But when it so happens that more than two hundred young people are so distinguished, in one year, in our own community, it is a matter of great significance, not only to our community, but more or less so to far away countries in many parts of the world.

The class of 1922 is the largest class by about twenty-five, the institution has graduated. At this time the number is about two hundred and ten. There are some, now teaching, who no doubt will yet come and enroll.

The world is well represented in this class and at this time is as follows: Alabama, 1; Arkansas, 1; California, 3; Colorado, 1; Connecticut, 12; Florida, 2; Georgia, 1; Illinois, 3; Indiana, 52; Iowa, 2; Kansas, 2; Kentucky, 4; Louisiana, 1; Maryland, 1; Massachusetts, 6; Michigan, 15; Mississippi, 1; Minnesota, 2; New Jersey, 3; New Mexico, 1; New York, 18; North Carolina, 1; Ohio, 9; Oklahoma, 2; Pennsylvania, 15; South Dakota, 2; Tennesse, 2; Texas, 2; Utah, 1; Virginia, 2; Washington, 1; West Virginia, 2; Wisconsin, 5; and, from the world outside of the United States: British Columbia, 3; Bulgaria, 1; Bermuda Island, 1; China, 1; Costa Rica, 2; Ecuador, 1; Greece, 1; Hawaii, 1; Norway, 1; Nova Scotia, 1; Ontario, 3; Phillipine Islands, 10; Porto Rico, 4; Spain, 1; San Domingo, 1; Sweden, 1.

As to courses they stand as follows:

Electrical Engineers	57
Civil Engineers	40
Mechanical Engineers	41
Chemical Engineers	17
Literary and Pedagogical Courses	10
Commercial Courses	6
Music Courses	6
Law	6

The commencement exercises will occur on the afternoon of June 1, in the Christian church. The Hon. Fred Landis will address the class and the faculty and the class very cordially invite the public to attend.

CLASS OF '22

Only a few years ago Tri-State College was an unknown institution to most of the members of the class of '22. Yet as we all know, a candle for the purpose of giving light is not placed under a bushel, so neither could an institution such as Tri-State College be kept hidden from the eager eyes of the now members of the class of '22. This light beckoned men from all parts of the world. From the East, West, North and South they came in quest of what was promised them by the authorities of the college. Namely, a training for life's work, providing an equal amount of energy be expended in the form of study.

Not one member of this fine class of ours, who did not try to get something for nothing, regrets that he took the fork of the road that leads to Tri-State.

As not any of us are sorry we came, so, few of us are sorry to leave. By that I mean we are all anxious to get out into the world and do things. Things that will be useful to others as well as ourselves.

Our parting will not be easy; yet it is for us to go where duty calls. Already it has called many of our classmates and we bade them farewell knowing they would reflect credit upon our class and school. Soon the remainder of us will be parting. Parting to go to the land from whence we came. Whichever direction it may be, wherever we may go let us conduct ourselves so that a classmate seeing us may proudly say, "There is a classmate of mine."

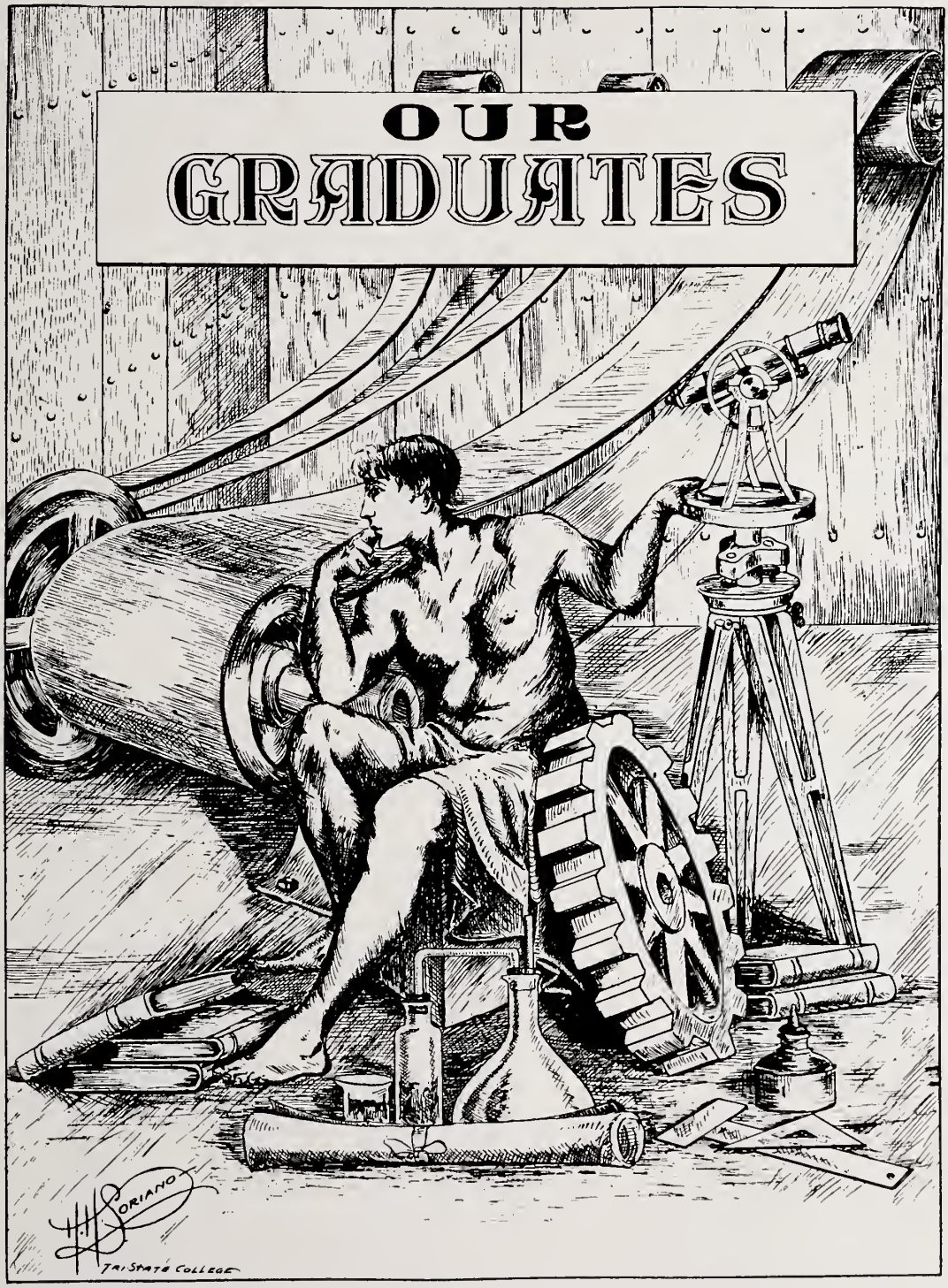
Our class "The Class of '22" is one of the largest ever sent out from the halls of Tri-State. The total number completing the Engineering, Educational, Art, Stenographic, Music, and Law courses is 180, of which 150 are Engineers.

As a class memorial it has been decided to place on the campus in front of the administration building a steel flag pole. The class at all times may feel proud of being able to present and erect such a memento and it is their sincere wish that it will meet with the approval of the faculty, the present student body, and future student bodies.

Serving as president of such a class has indeed been a pleasure. My sincere thanks goes to the committees who have been so faithful. To each and every member of the class, Good Luck, and may your harvest be a bountiful one.

To the town folks and friends, the class of '22 thanks you heartily for your kindly interest in us and bids you farewell.

Paul M. Lefever, Class President.


OUR
GRADUATES
HH Soriano
TRI STATE COLLEGE



LAWRENCE JAMES ANTHONY, E. E.
Traverse City, Mich.

Hails from the sticks of Michigan. It takes four men to wait on him at the boarding house.

EDGAR ELSWORTH BAILEY, E. E.
Dickson City, Pa.

Another coal miner. Played on the baseball team last season. Quite a man with the ladies. You said a mouthful.

CARL BARS, E. E.
St. Charles, Ill.

As fine a fellow as an Electrical Engineer can be. Served one term on the Integral Staff. He is a pillar of the Methodist Sunday school, which accounts for his present position as Treasurer of the graduating class.

EDWARD BENJAMIN, C. E.
Dickson City, Pa.

Ben hails from the coal mining districts to which place he is going, to show them something about Civil Engineering.

WILLIAM BROADWELL, Ch. E.
Bangor, Mich.

Red has seen service abroad, also in Angola. Expects to write a book on how to study Calculus.

LEO F. BUNDE, M. E., E. E.
Wisconsin Rapids, Wis.

Blondie has a very strong mechanical instinct. Makes Ford speedsters out of old tin roofs. Secretary and Treasurer of the Musical Association.



JOHN DALTON, M. E.
Eldorado, Kansas

John came out of the west to us, a real nice boy, but has since matured into a man, yes a ladies man. It is a good thing for a certain lady in Kansas that our Johnny isn't remaining here for the summer. John has always been a supporter of all kinds of athletics, but only active in mental gymnastics.

GEORGE HELAIRE DECANCQ, C. E.
West Hoboken, N. J.

George and his violin have made great inroads on the hearts of the local people. It is a long guess to say whether it is the rasp of his Thoity-Thoid street lingo, or the tune of friend violin that has secured for him safe anchorage in Garrett.

HERMAN DUGROO, M. E.
Holyoke, Mass.

The boy with the permanent smile. Expects to use his mechanical ability around the Mohawk Trail.

WALTER ELLIOTT, E. E.
Dickson City, Pa.

Walter has had the practical experience working in the coal mines and came here to get some of the fine points.

CARL ERICK ERICKSON, E. E.
Rotteroto, Sweden

Erick is a hard worker, and expects to show Steinmetz a few things when he gets out in the world.

JOSEPH M. FRAME, C. E.
West Union, Ohio

Joe isn't very big, but his intentions are to do big things.



CHARLES ALLEN FREED, E. E.
Bergland, Mich.

Practical man. Came back last fall to complete his course. Also to find a woman. Let the light so shine.

JAMES WILLIAM FRYE, C. E.
Wildwood, Ga.

Jimmie helped the Civils in basketball. Is going to build a fence around himself, to keep the ladies off.

WALTER HERMAN GRUENBERG, M. E.
Gary, Indiana

Walter is one of the quiet type, and a hard worker, but he has fallen this term for the fair sex.

FRANCISCO GODREAU, M. E.
Costa Rico

Godreau started in Chemical Engineering but got tired chasing molecules, so decided to change, and oil the path of the molecules in order to reduce the friction.

GEORGE SCHOFIELD HANSON, C. E.

Slim, or Chi, is a railroader by birth. His friend Harry recalls being chased out of a box car on the C. H. & St. P. by Slim, who was brakeing then. It looks as if he has lost the faith now, and is taking up the management of Flohr's T. S. C 4.

LAWRENCE H. HEIT, M. E.
Portsmouth, Va.

"Larry" was born in the windy state of Kansas, but was caught in a whirlwind and deposited in Portsmouth, Va. He is a student. Ask the Profs. Also a good fellow. Ask the patrons of the stock room. He is very nice. Ask the girls.



EDWARD M. HOIDAHL, M. E., E. E.
Angola, Ind.

Hoidahl hails from the mountain of Sweden, where he practiced electrical engineering to such an extent, that he was offered a job by the Westinghouse, but he refused—to come to Tri-State. Can be seen Saturday mornings strolling along the streets with a vacuum cleaner on his shoulder. How would you like to have a man like that for a husband?

WILLIAM GUSTAVE HOLQUIST, C. E.
Minneapolis, Minn.

Dignity to the word go. Until recently never alone. We feel sure that there is nothing serious. Good luck to you Holquist.

RUSSELL LAYZELL, M. E.
St. Charles, Mich.

Shorty, the medical adviser. If in trouble, see him, and be advised to see a chiropractor.

PAUL M. LEFEVER, E. E.
Florin, Pa.

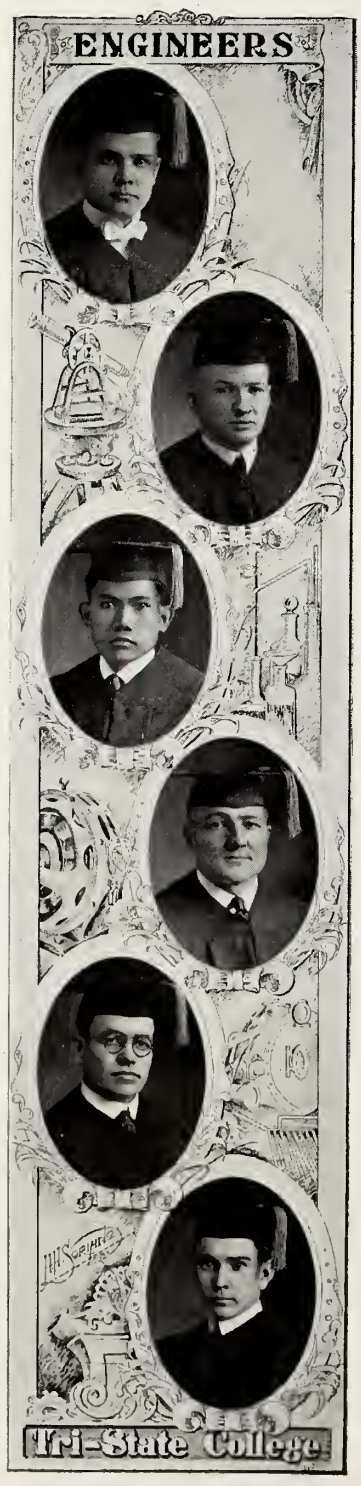
Ex-President of the Engineering Society, Editor-in-chief of Fall term Integral and now class president. Instructor at the college. A hard worker in everything he undertakes to do.

FORREST JAMES LINQUIST, C. E.
Kane, Pa.

Link, a har worker for the Engineering Society. He hails from Pennsylvania, but loves the swamps of Lousiana, and expects to settle there.

JOSEPH CHARLES LONG, M. E.
Fairfield, Ala.

Joe, our funny little second baseman, for three terms cartoonist on the Integral Staff. See his work, and laugh with him.



JORGE MAROTO, Jr., M. E.
Costa Rica, Limo, Cen. A.

Jorge is quite a designer and is going back to Costa Rica, and show them a few things about designing.

WILLIAM D. MARSHMAN, Ch. E.
Deposit, N. Y.

Bill, the pride of the navy, got married to keep from the clutches of the Angola maids. Is experimenting on a gas to be used in future wars.

MELECIE M. MARZAN, E. E.
Argo Lochion, P. I.

Meli has taken a fancy to red headed girls, and is contemplating going to Oxford to find one.

GEORGE P. MESSENGER, E. E.
Elreno, Okla.

George is in his glory when fooling around gasoline engines. We expect to see those Oklahoma plains covered with a net work of electric systems.

THOMAS LEO McGINTY, E. E.
McClellandtown, Pa.

Mac hails from the coal mine district of Pennsylvania. He came here to become an engineer but has decided to enter politics.

CHARLES R. McNEIL, Ch. E.
Mammette, Wash.

Mac is the champion male vamp of the college. Broke his record last summer and the whole neighborhood knew about it. He hails from the tall timbers of Washington.



MARTIN D. MIRANDA, M. E.
Calasiao Burgas'an, P. I.

Came here from Ohio University, a hard worker. Expects to run all machinery by water power.

HERBERT F. NELLOR, E. E.
Indianapolis, Ind.

Nellar has made quite a reputation as a salesman and intends to get rid of a few electrical appliances.

CARL CHRISTIAN NISSEN, C. E.
Newton, Kansas

Red, the living railroad manual and general informant on all parts of the world. Red is taking a sharp turn for the better, and has accepted a job selling Bibles through the Middle West.

ALBERT M. NORMAN, E. E.
Sheridan, Ind.

One of our strong students. Always there when there's work to be done. The only thing he has not been able to do for Prof. Pfeiffer was to find a bottle of electrons which he was sent for. Hope that some day you will find them Norman.

LAWRENCE E. NORTHAM, E. E.
Kinksbury, Ind.

Skipper hails from the Hoosier State. He expects to electrify all the railroads in Indiana.

RAY CHARLES OLTMAN, C. E.
Grand Rapids, Mich.

Ray, the bearded youth. His previous time at Hope College filled him with aspirations which he says will be realized in October, by a Chicago girl. Ray is doubtful as to whether his field on endeavor will be on the stage or in the U. S. Revenue Department.



FLORENTINO PEREZ, M. E.
Palatan Ilorlo, P. I.

Planning to build locomotives for the Philippine Island railroads.

JAMES PETTIGREW, Ch. E.
Bridgeport, Conn.

Little Jimmie, Asst. Prof. in Angola High School, Joke Editor, and Editor-in-Chief of the Integral. Jimmie has tried a little of everything—Class basketball, teaching, vaudeville and musical work, as well as most of the eligible ladies of the town.

ROBERT E. PHELAN, C. E.
Bridgeport, Conn.

Wild Irishman, Politician. Two terms of editorial work in the Integral. Power behind the throne in Athletic Association, and an energetic worker for the Engineering Society. Motto—"Make this the best ever." Integral—Hallowe'en Stunt—Class Picnic—Baseball Activities.

WALTER F. PINCKERT, E. E.
Santa Rosa, Calif.

Pink is anxious to get back to California and display a little of his electrical knowledge.

OTTO PRASTKA, E. E.
Cedar Rapids, Iowa

Otto is a great lover of flowers, if you don't believe it ask a certain young lady in town, who gets them by the dozen.

PETER GLIDWELL PERRY, E. E.
Davison, Mich.

Peter hails from the sticks of Michigan. Says little and does much.



JULIUS REINER, M. E.
New York City, N. Y.

Julius aspired to champ of the middleweights until he conceived the idea of becoming a Mech. Eng. Well you have your degree so hop to it. We expect things of you.

UNION BANNER ROBERTSON, C. E.
Salem, Ind.

Came here from Purdue, spends a lot of time with the tennis sharks.

GEORGE OSCAR ROSS, E. E.
Perry, N. Y.

The electricals are indebted to their captain in basket ball for trying to instigate a little pep among them. They nearly won a game once. George also has gained the association of a Ford Sedan and feminine occupant.

WILLIAM B. RUSSELL, C. E.
Madison, Ky.

Bill made quite a hit with the girls from the Marcus show and thinks he will give up engineering and follow the show game.

LEON C. SHAVER, M. E.
Rochester, N. Y.

From the wilds of New York. Graduates from K. P. to assistant chef at Lampman's. Spends the early morning hours learning to play tennis.

FRENCH E. SMITH, Ch. E.
Ashland, Ky.

French comes from old Kentucky. He is trying to compete with Einstein on some theory in math, but graduates as a chemist.



HARRY E. SMITH, Ch. E.
South Charleston, Ohio

Harry says, "No more bunk fatigue at Watson's." He is going out into the world with his degree and claims he will make the chemists sit up and take notice.

ALFRED C. SOCHACKI, E. E.
Middletown, Conn.

Hails from the Nutmeg State. Quiet and a hard worker.

RICHARD McKEE STEELE, C. E.
Battle Creek, Mich.

Dick is the author of "Why Grape Nut eaters make the best civil engineers." He intends to build a railroad from Angola to Metz.

PABLO VILLANEUVA, M. E.
Philippine Islands

A good student. Aspiring for Prof. Neihous' job. We expect to hear of him being Dean at some college.

CHARLES DAVENPORT WAILES, C. E.
Memphis, Tenn.

Charlie, ex-president of the Engineering Society, and a hard worker. He served his time on the Integral Staff.

JOHN RUSSELL WEIL, C. E.
Little Rock, Ark.

The pride of Arkansas. Russ has been an enthusiastic supporter of College Athletics. At present, is dignified as advertising manager of the Athletic Association. His line is classic, and his stories immortal. "Russ, do your dog eat KAKE?"



Wednesday, March 15th—School closed today for a five day vacation and all the lucky ones either went home or visiting. Some of the unlucky ones had to stay around and enjoy a much needed rest.

Tuesday, March 16—Things are sure dull today. Streets deserted and everybody sleeping. In the afternoon our friend "Kid" Rogahn was seen promenading with a fair damsel "in tow." Later investigation developed to show that it was "she" from Milwaukee. Quite a few of the dance hounds journeyed to Coldwater and all say that they had a great time.

Friday, March 17th—There wasn't a thing doing during the day and the dance that night was fairly well attended for a vacation night. A fire broke up the dance at about eleven o'clock. All who had to stay in town and who lived within a radius of five miles were on hand for the treat. The fire was a bad one and gave our fire department a stubborn battle. After it was all over there was one restraurant, one soda parlor, one fruit store and one barber shop closed for repairs.

Saturday, March 18th—It rained and the few unfortunates who stayed in town sought the shelter of their rooms. The dance was well attended. Tommy Reese, Dinty Moore, and Mick Earl left town for a tour of the nearby towns.

Sunday, March 19th—Couldn't find a person until at dinner time when many sleepy eyes were seen seeking a place of refreshment. Rogahn made a trip to Waterloo in the afternoon and came back minus his "tow". He sure looked blue at supper and said something about using a meal ticket in three days. Bill Blakey, Berquist, Bergen, Rohlwing and that whole gang made a trip to Garrett. We all hope they had a wonderful time and made the grade O. K. Some of them did not show up until Monday.

Monday, March 20th—We all came back from the land of dreams and sunshine to find it snowing and blowing. Grade cards were given out during the day and, if there is any truth in the old saying, some of the prof's ears sure "burned". Blakey, Berquist and some more of the boys turned up on the 7:50 train. Seems they journeyed on to Fort Wayne after their visit to Garrett.

Tuesday, March 21—Spring entered like a lion, cold, raw, and mean. The town again begins to look populated. Every train brings back our old friends. At two o'clock President

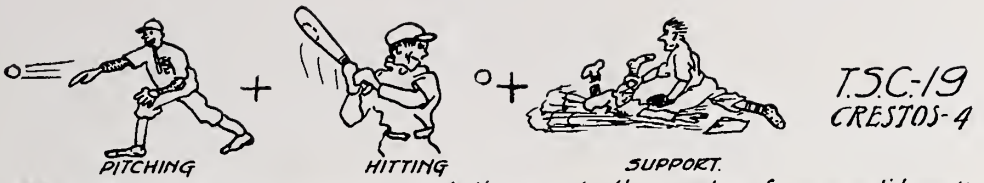
Sniff gave his usual address of welcome and encouragement to the student body, old and new. And during his talk he remarked about the smoking a tthe Engineers banquet, he said it was not the amount but the quality that annoyed him. Prof. Handy then took his old station and patiently tried to work out the conflicts. The shows were well attended as a last farewell until some week end. George Gaynor drifted back from his sojourn in Chicago, and we have been wondering ever since what was in that heavy suit case. Mick Earl, Dinty Moore, Tommy Reese and Duke Welhelmi got back in town from Detroit. Those burlesque hounds sure did some stepping while out of sight of their care takers. Wilhelmi disappeared during the afternoon and could not be found at supper time or in the evening.

Wednesday, March 22nd—Classes started and some o fthe seven o'clock ones were not as well attended as they might be. Spicer came to Mechanics with such a loud shirt on that Tommy Reese thought that he had put a collar on his pajamas. Big Jeff har a hard time to keep awake—don't start so soon as the first few days' impression counts a lot. At chapel Prof Handy did some more "stunts" on the conflict board which caused some happiness and some sorrow. Shafer kinda got twisted on two subjects and at last reports was still trying to figure out how he could make both classes at the same time and graduate. The sun came out and the snow started reducing. The base ball bugs have appeared already and it looks like things will begin to hum soon. Wilhelmi turned up this afternoon with a story about being stuck and having to shovel seventeen yards of mud or something to that effect. Harry Smith "motored" back on the 6:22. Ted Lewis got back on the 2:05 and Ray Oltman drifted in from Chi on the 6:22.

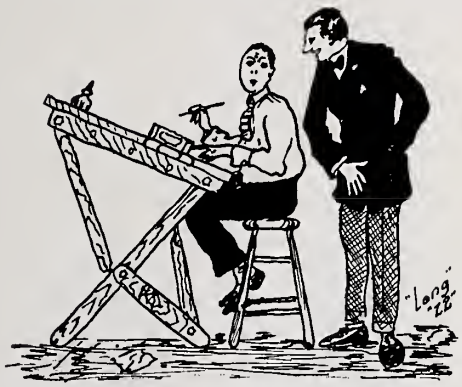
Thursday, March 23—It warmed up a bit as the early hours were a bit cold many missed their seven o'clock classes. Bruhn was around saying goodbye before leaving for Garrett to accept his position as a "school marm." After trying a nurse perhaps he figures the high school children are better suited to his gentle manners. Don't worry, Cookie, there are a lot of other fellows in the stock room. Bob Akers and Travis had the baseball fever so bad that they started to warm up on our main business thoroughfare—Main street..

Thursday, March 23rd— Cole, Jax, Judson and Gruenwald returned to school in the Yellow Speed wagon. They haven't commenced telling about the trip, that is not yet——, but when they do some one will have to do some tall digging. Prof. Niehous became so wrapped up in a problem in surveying class to-day that he kept the boys in five minutes overtime. What's this old world coming to, anyhow, and so early in the term too. Jerry Maloney returned on the 6:22 from South Bend and Indianapolis. Says he had a good time considering—, whatever that means. Bill Blakely and Carrol were on hand to meet the same train, but not Jerry. That's what a woman will do to a fellow. There was some party on up at the Elk's dance hall this evening. It was sure enough decorated swell and some of our "upstairs" friends were seen escorting women to the affair which turned out to be a dance. Ryder and Boykin were seen "dashing around" the square with a couple of our former fair co-eds.

Friday, March 24th—As the first week-end draws near many are planning on getting some sleep and others are drawing sighs of relief and saying only eleven more. Bill Blakey and his pals slept so late that they had to ship the girls out on the 9:10 without any breakfast. It sure was tough luck for the girls but saves meal tickets for the boys. Was a bit cold today and our friends, the baseball bugs, stayed indoors. They all fall sooner or later. Reports have it that Boykin sat in a sun parlor last night waiting for the sun to come up—no he wasn't alone, he was entertaining. During the Calc. B class it started to rain and then Skole started telling our fisherman Eakle how good fishing was in the rain. Engineering Society held its first meeting of the term. Everything went along smoothly until Marie Berry started to giggle. The program was good and the meeting well attended. Being as it was Friday night, "Shorty" Dixon, Martindale, Jones, Ryder, Hurd and Shorty Layzell proceeded to celebrate and they did all right too. "Chi" Hanson was caught strolling with one of the town belles that rings in the hotel. "Ship" and Polly Maynord spent the evening showing the boys how to play billiards. To date we have yet to see those two pay for a game. Better lay off boys. Prof. and Mrs. Gallaher made it two straight by attending the dance to-night.



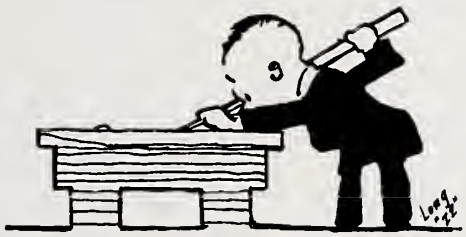
REVENGE IS SWEET: The boys were a little peered after reading for one solid week the defeat handed them by the Crestos from Ft. Wayne last season. Be more careful ME CRESTOS, or the boys are liable to get mad.





THE WELCOME

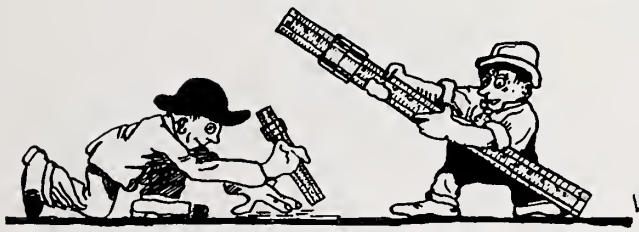




ENGLISH IS PRETTY STIFF BUT I AM MASTERING IT.



APRIL 21st AT N. MANCHESTER N.MAN 2. T.S.C. 12. THE BOYS SHOWED EFFECT OF THE PICK AND SHOVEL WORK ON THE DIAMOND.



SPAYTH IS FORCED TO BOW DOWN IN THE SLIDE-RULE -VS- SLIDE RULE CONTEST WITH PROF. NIEHOUSE.

Saturday, March 25th— The day dawned clear and warm for a change and all of the boys who had so-called "cars" were out tuning them up. Some sure enough need a lot of tuning. Hathaway had the "Armored Car" out minus its decorations. Stecki and Cook had their "boat" on the road and we "heard" Jax's car around the corner, although we didn't get a chance to see it. Teachers exams to-day down at the school house and some of the boys were made happy as a number of our co-eds of last spring and summer were in town. Big show in town to-night. They had so much scenery that it aroused the curiosity of all the boys and the show was well attended. The name of the show was "Three Wise Fools" and as it came with a good "rep" some of the fellows dug so deep that they bought two tickets. Tommy Reese worked out a little this afternoon preparing for his duties on the mound for old T. S. C.

Riebush, Rozeska, Bell and others also did some workings with the ball. They will be nice and sore for to-morrow. Charlton and Marshman went to Fox Lake snake hunting. They reported 25 dead. Bell wants to know what kind they were so he can keep away from them.

Sunday, March 26th— As the day was fair and warm a goodly number of the boys spent the afternoon strolling around town and the country nearabouts. Some were even lucky enough to have a lady friend to take along Frank Spayth took the calendar man out of town in the evening which accounts for the lack of the usual Sunday evening scandal being bared. Jim Pettigrew missed his dinner today because he couldn't keep his dates straightened out. Bruhn, a former member of the Music Hall Frat, who is teaching down at Garrett is making good and all the fellows extend their wishes for a successful teacher's, and married life.

Monday, March 27th—It was rainy and misty all day and as a result most of the fellows did a lot of much needed studying. The college boys turned out in full force for the free supper and to help give Dugroo, Leonard, Pinckert, Perry, Stevens and Brown an entirely satisfactory evening. Judge Best spoke at chapel and during his talk he said that the lady about whom he was speaking lived in Los Angeles but was thouroughly an American. Prof. Starr gave the boys a short talk about overdrawing their check accounts. Help—— Prof Sherrard tried to make his chemistry class believe that Kansas City was in Arkansas. The Sheik comes so well advertised that the show was crowded regardless of lessons. Eddie Murphy was at Hatfields boarding house for the first time in ten days. Ed was sick all during the holidays. Tough on you Eddie. Slim Flohr, our Mississippi banjo playing fool, kept the boys amused while waiting for supper by trying to tell them just who Charlie Noble is. Slim is some old salt as well as a tremolo of steel over gut.

Tuesday, March 28—It continued to rain all day, so the baseball fans and players had another day for studying. A telegram arrived in town for one Schrader and so the operator just called up the house and delivered the message merely stated that it was a boy Tom answered the phone and couldn't understand the meaning of the whole thing. He thot he was in for something, he claimed to know nothing at all about until it developed that the message was for Max and not for him. Boykin and Phelan seem to have a failing for cashiers as they each had one this evening. The band had its first practice of the season tonight. It is expected to hit its stride early in the term and turn out some snappy work. The band is to be complimented on its great development in so short a time.

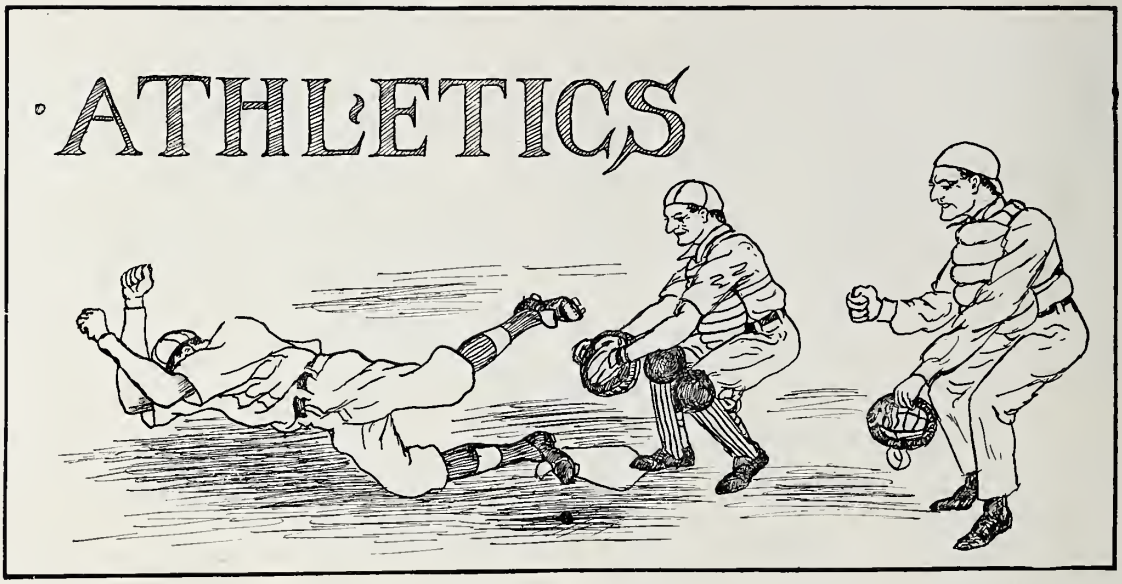
Wednesday, March 29—Altho the weather showed no signs of clearing up, much less getting warmer, there was a meeting of the Athletic Association in chapel hall at 6:45. Ed Holdahl left today for a short visit to the big town of Chicago. In Machine design C today Prof Roush was talking about buying some machine chucks but complained that they cost about nine dollars. Cole pipes up in his genital way and informs him that he could get him one for a dollar whereupon Walko informed Cole that the class was interested in machinery and not wood-chucks.

Thursday, March 30th—Shorty Layzell was caught giving Ben Melvin a work over in Calc. D. Prof. Niehous took advantage of the occassion to give poor Russell a lecture as to the behavior of children in high school. "Kraut" Weyers, our soprano singer, flew off the handle at Freddy Berquist and soared to vocal heights that made every one's head ache. "Dutch" Miller is getting a whole lot of free lessons in persuasive argument in trying to get talkers for the Engineering Society meetings. It still continues to rain and get colder much to the base ball bugs disgust. Prof Niehous assigned seats to the students in surveying class and because Rodenwold got the seat next to Queenie, Phelan quit the class. Major Freeman's pet cat disappears from home and he spent the day and night searching the town for it. Prof. Niehous said in class today that he believed in doing things by means of the least resistance. We believe him. Since Glenn White accepted a position as hash slinger evenings a certain young lady has appeared on the campus looking rather down hearted.

Friday, March 31st—A meeting for the gradnates of the class of 1922 was called for 3:45 in chapel hall. About eighty-five members turned out and Prof. Bailey called the meeting to order and let the anxious ones know the meaning of the whole affair. After the elec-

Continued on page 52





By Vivian E. Boykin

To the American college student the spring term of school presents the most interesting sport of the year. Baseball to every American boy is almost an inherited pleasure. True to this inheritance our Tri-State college association has made a great effort this spring to put before the public a fast, clean cut outfit backed to the limit by the spirit and support of the student body and friends. I will here recount the doing of the association, their efforts and accomplishments.

The evening of March 28, the first meeting of the A. A. this term was held with a goodly attendance.

As Manager Leonard had been called to Washington on business it was necessary to temporarily appoint another manager. To this position Thomas Reese, of last year's pitching staff was elected.

Jerry Maloney was re-elected vice-president of the A. A. and committees were appointed to care for the diamond and solicit the financial assistance of the local merchants.

April 3rd A. A. membership tickets went on sale, which entitled holders to all baseball privileges. The same day the first try-out was held on a very wet field. Great satisfaction was had by all those interested to find such a large number of real ball players out for the team.

On the evening of the 11th a second meeting was held, at which the resignation of George Leonard was accepted and Tommy Reese unanimously elected to fill the position permanently. At the same meeting Bolquerin was elected to the office of secretary and treausrer of the Tennis branch of the Association, and authorized to immediately put on sale membership tickets, holders of which would have all tennis privileges.

The baseball practice was held under most unfavorable conditions due to the inclement weather. Manager Reese showed real executive ability in organizing his men, and almost professional judgment in his selection of the team. April 15th the team met in chapel hall and after a brief but pointed talk by the manager upon the ethics of the game, Philip Hedges was elected captain of the new organization.

It was found necessary to solicit the business men of Angola for a subscription to our athletic fund. The management and players of the team as well as the entire personnel of the A. A. take this opportunity to thank the following men who contributed so freely and liberally to our fund.

Beneath appears a copy of the statement, with signatures affixed, of the subscriptions.

We, the undersigned, citizens of Angola and friends of the students of Tri-State College, do, for the good of the town and college, for the pleasure of the students and for the spirit of good sportsmanship in this community, offer


The Grand Rain

our good will and financial support to the Tri-State College Athletic Association.

In testimony of this fact, and in the presence of a committee from the aforesaid Association. I do willingly sign this acknowledgement of my support and give into the hands of said committee such financial help as they ask for of me.

Signed—

L. C. Stiefel	Callender Hdw Co.
Willis W. Love	Williamson Hdw. Co.
C. H. Douglass	Bassett & Ransburg
Steuben Republican	John Christ
Joe Brokaw	F J. Richardson &Son
Ginger Brokaw	Bert Beebe
H. W. Morley	W. A. Helme
C. W. Buck	A. E. Elston
W. W. Watson	Guy Kemmerling
Bert Oren	Adams & Bender
Cline's Picture Shop	Conway Mote
Kratz Drug Store	Roy E. Cox
Kolb Bros.	Harry McKillen
Wm. A. Pfeifer	Pappas & Poulous
J Bender	C. E. Beatty
Patterson's Dep. Store	Ollie Bassett
W. L. Jarrard	F. E. Burt
E. J. Dunn	Modern Steam L'ndry
R. Otis Yoder	Mast Bros.
G. Shrider	Slade & Porter
Weaver & Dirrim	

This subscription having been taken up, the Association was in a position to repair the old diamond, which work was done under the supervision of R. E. Phelan, who was ably assisted by the Sport Editor, the management of the team and many willing hands from the Athletic Association.

The first game of the season was played with Hillsdale College. Tri-State outplayed the home team in the field with the exception of the side hill position, or right field, where Len Rogahn, who lacked the mountain goat instincts of the Hillsdale fielder, couldn't find his way so cleverly among the rocks and shrubs of his high location. However our boys were a little weak on the offensive, due probably to their ignorance of the many pockets in the field where the ball could temporarily be lost. Final score was Hillsdale 6, Tri-State 2. Travers and Lott divided the pitching.

The following Friday our team took a motor trip to North Manchester, where they delayed just long enough to show the Manchester College club a few fine points of the game and how they worked out in batting practice and base



running. The Tri-State battery was Lott and Fulmer. Lott held his opposition to one hit and two scores as against our ten hits and 12 scores. Capt. Hedges, Mulvy, Fulmer and Boykin divided the hitting honors, Mulvey leading with a home run, and Boykin following with a three-bagger, and Fulmer with two twos.

On the next Monday, April 24, our entire student body led by the college band paraded out to the local grounds for our first home game to be played with the all confident Hillsdale outfi. Travers pitched a tight game and the visitors were outplayed in every inning. The locals rather upset the visitors' pitching staff by running up ten hits. Capt. Hedges stepped out for a three-bagger, and his team fell right into line. In the first of the ninth the visitors enjoyed a short lived batting rally which was brought to a sudden close by a spectacular catch in the left field. It resulted in a decided victory for Tri State by a score of 4 to 3.

On Saturday, April 29th the Cresto Athletic Association of Fort Wayne sent their team into Angola preceded by several extraordinary write-ups in local sporting columns. The Crestos met their Waterloo at the hands of Tri-State, whose regular peppy outfit was augmented by the pitching ability of their new find, the boy from the blue grass region of Kentucky. Garnett pitched a perfect game, holding them to a score of four runs as against our 19. It looked like we were giving our boys a little track experience. Our boys hit to the man and Kohli held up th enviable reputation of our fielders by snatching off many seemingly long hits.

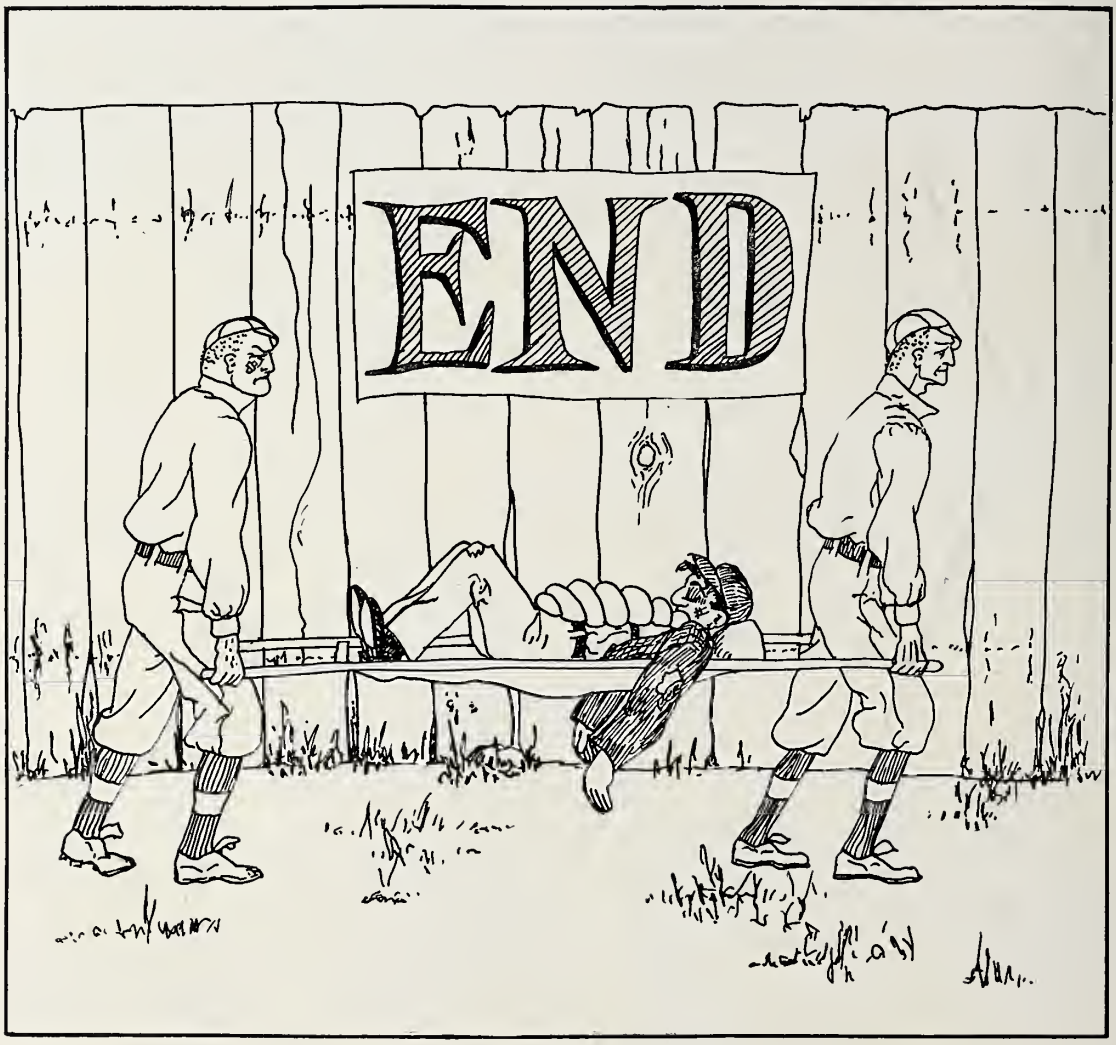
Having played two games with Hillsdale, each side winning one, it was agreed between the managements to continue and play a five game series. The third game of the series took place in Hillsdale, May 5. About 150 Tri State men followed the team into Michigan and were on hand to strenuously voice their disapproval of the several decisions, which savored greatly of the customary Hillsdale unfairness, and were responsible for four of the eight scores. The Tri-State team tho under the great handicap of two antagonistic umpires managed to score four wholesome runs. At several occassions Tri-State had a couple of men on base but the very efficient Hillsdale umpires succeeded in keeping them from scoring. When Joe Ling knocked his home run he found it prudent to stop on each bag and salute the umpire lest he be called out. At times out rooters became excited and Hillsdale5s support was in grave danger. However, nothing more than a demonstration of Tri-State spirit.

Monday, March 8th, the fourth game of the series with Hillsdale. Garrett and Futing was the Tri-State battery. Garnett showed signs of being wild and forced in Hillsdale's only score. In the first inning Long scored for T. S. C. The 1 to 1 score was held thru ten interesting innings when the game was called to permit the Hillsdale outfit to catch their train back to the Michigan woods.

As it is necessary for this issue to go to press at this time, I regret that I am unable to recount for Integral readers such games as we will have between now and the end of this term.

There appears below the batting average of the Tri-State College team for this season.

Name	Games	A. B.	Runs	Hits	2-B	3-B	H-R	S. H.	B. B.	Aver.
Travus	3	8	1	4	2					500
Rogahn	4	12	1	5				1	1	415
Fulmer	6	20	1	8	4	1		1	2	400
Mulvey	6	27	8	10	2	2	1			370
Long	6	24	8	8	2		1			334
Hedges	6	20	6	6	2	1			2	300
Holt	2	7		2					1	285
Boykin	6	24	3	6		1			2	250
Ritchie	3	4	1	1						250
Nutto	5	15	1	3						200
Garnett	2	6	3	1				1		167
Greunwald	3	13	2	2						154
Kohli	6	24	2	2				1		83
Quinn	2	2	1						1	
Ruse	1	1								



CUT ON THE CENTER LINE.

When you're tramping o'er the subgrade with
a transit on your back,
And to a merry whistled tune you're keeping
time,
Don't eat the rookies biscuits when ou reach
the outfit's shack,
Or you'll end your days out on the center line.

When you hear the whistle blowing while you're
taking that last sight,
And you're thinking that you've got a world of
time,
You had better "pick up" laddie and conclude
that I am right—
Lest you end your working days out on the
center line.

While working in a tunnel 'round a dynamiting
crew,
You had better smoke your pipe out in the shine,
If while shooting in some grade stakes, you
For those black kegs aren't a-taking any folly
lad from you,
And you'll end your days out on the center line.

chance on a maiden fair,
Don't think that she is "IT" and all sublime:
For one word will send your fancies a-floating
thru the air—
And you'll end your days out on the center line.

—Daniel Ross '24

Ancient Views



St Sophio, Constantinople



Constantinople, Turkey



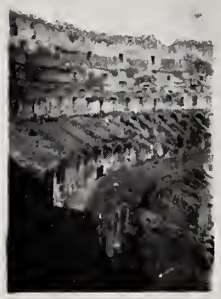
Temple of Zeus, Athens, Greece



The Forum, Pompeii



The Stadium College of Athens



Colosseum, Rome



The Forum, Rome



Mt. Vesuvius



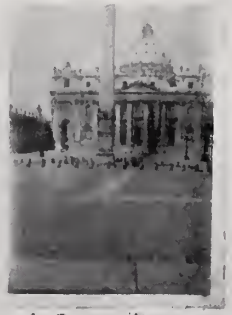
Theater of Bacchus, Athens



The Parthenon, Athens



The Punishment, Greece



St Peters, Rome



The beautiful thing about the future is—There's so much of it.

A woman entered a photographer's gallery.

"Do you take pictures of children?" she asked.

"Yes" was the reply.

"How much are they, please?"

"Three dollars a dozen," said the proprietor

"Well," she replied with a sigh, "I shall have to wait and come again. I have only eleven."

—TSC—

Guest at country hotel: "Where is the chicken I ordered for my dinner half an hour ago?"

Nine host: "Hold your horses, mister, it'll be along directly. The cook ain't killed it yet, but she's got in a couple of nasty blows."

—TSC—

The Washington official who says Americans do not function above the neck; has certainly never observed some of our girls chewing gum.

—TSC—

Mrs. Brown: "I suppose you have been in the navy so long you are accustomed to sea legs?"

Petty officer: "Lady I wasn't even looking."

—TSC—

Treat 'em Gentle

An old drill seargent was noted for his ability as a drill-master and was invariably assigned to the task of breaking in new recruits. There came to the company a captain with advanced ideas who quickly noted that the seargent was as proficient in profanity as he was in the I. D. R. He took him to task.

"Sergeant," he said, "I have no complaint to make of your ability but I want you to realize that you are to teach these men how to drill and not how to swear. And I want you to realize that explanation is necessary before calling them down fo rinferior work. Now I expect to see some improvement in your methods."

"Very good sir."

The following day he heard the sergeant at instruction.

"Now I want to see you step out lively my sons. And keep your eyes straight to the front my sons. And hold your heads up my sons. You know the kind of sons I mean."

—TSC—

Kitty aged six, had been naughty, and her father had had to administer vigorous punishment before going to business. That an impression had been made was apparent when, on his return from business in the evening, Kitty called up-stairs with frigid politeness: "Mother, your husband is home."

Sign in Garage

"Equip your flivver with our cuckoo clock. When the blamed thing reaches 20 miles an hour the bird comes out and sings, 'mearer, My God, to Thee.' "

—TSC—

Mother: "I'm ashamed of you, Betty! Why are you whipping poor pussy?"

Betty: "'Cos he's dirty. He spits on his hands and wipes them on his face."

—TSC—

"Mother, why did you marry father?"

"So you've begun to wonder too, have you?"

—TSC—

The maiden scrambled round in haste,
"I'm terribly late," she raved
"I have a date at eight o'clock
And eyebrows still enshaved."

—TSC—

Mrs. Bailey rushed into Jackson's store crying: "Gimme a five cent mouse trap. I want to catch a train."

—TSC—

Ethel (copying her music exercise): "Mamma, what does 'andante' mean on this music?"

Mamma: "Ann Dante is the name of the composer ofcourse. Her brother wrote a poem called 'Dante's Inferno.' "

—TSC—

Mildred: "No Otto! I don't believe is kissing a man before—

Otto: "Marriage?"

Mildred: "No, silly—before I turn out the lights."

—TSC—

I wonder—If Plato could shimmie, could Aristotle?

—TSC—

"Does you fiancee know much about automobiles?"

"Heavens no, she asked me if I cooled my car by stripping the gears."

—TSC—

We would like to know how a deaf and dumb man hugs a girl and tells her howmuch he loves her at the same time.

—TSC—

A Girl I Would Love To Meet

One who hasn't read "The Sheik."

Who doesn't ask if she is the first girl you have ever kissed

Who doesn't meet you at the door with her hat on.

Who hasn't heard my jokes.

Who doesn't smoke all my cigarettes.

Who can talk about something besides the men.

Who doesn't think she is a big timer.

Who doesn't know everybody in college.

She could have my heart and happy home.

—TSC—

Merle: "My sister got a pearl from an oyster."

Lulu: "That's nothing; my sister got a diamond from some poor fish."

—TSC—

"Majie, have you been smoking?"

"No mother."

"But your breath smells of tobacco."

"Father kissed me good-bye"

"But father doesn't smoke."

"I know it, mother, but his stenographer does."

—TSC—

"I find the great thing in this world is not so much where we stand as inwhatdirection we are moving. We must sail sometimes with the wind and sometimes against it, but we must sail and not drift, nor lie at anchor.

—Oliver Wendell Holmes.

—TSC—

So live that when they summons come to join the innumerable caravan which moves to that mysterious realm, where each shall take his chamber in the silent halls of death.

Thou go not like the quarry slave at night scourged to his dungeon, but sustained and soothed by an unfaltering trust,

Approach thy grave like one who wraps the draperies of his couch about him, and lies down to pleasant dreams.

—William Cullen Bryant.

—TSC—

Poor little soldier,
Don't yonu cry;
You'll get your bonus
After you die.

—TSC—

She: "Kisses are intoxicating."

He: "Let's get soused."

—TSC—

"Mrs Brown must be very much in love with her husband. She telephones him fifty times a day."

"That's not love, that's suspicion."

—TSC—

Coed: "Last night Billy tried to put his arm aronnd me three times."

Ed: 'Some Arm."

The Secret of Success

"Do you know", beamed Shipman to his calc class, "as I came into the room this morning. I read a single word printed on the door; without which not one of you could dream of succeeding in the scientific world."

"Pull," shouted the class in unison; and Ship knew that he had taken his motto from the wrong side of the door.

——TSC——

. .The Difference Between Thine and Mine

Two mine engineers were discussing deep mine shafts, and one had told in glowing terms about mines in which he had worked.

"Jump into my car and I'll show you a regular mine," said the other.

Arriving at the mine they saw the hoisting engine revolving at a teriffic rate. The engine man was asleep. Rushing to the sleeping man they cried: "Wake up man! You'll pull the cage thru the roof!"

"What day is this," the engine man asked sleepily.

"Its Tuesday but stop your engine quick!"

"Aw g'wan," he replied, disgustedly, settlying himself back in his chair. "She wont be up till Friday."

——TSC——

"Triggernometry"

A keen-eyed but obviously scantily educated mountaineer led his gawky over-grown son into a country school house.

"This boy's after learnin'," he announced. "What's your bill of fare?"

"Our curriculum, sir," corrected the schoolmaster, "embraces geography, physiology, arithmetic, algebra, trigonometry—"

"That'll do." said the fother, "That'll do. Load him up heavy with triggernometry. He's the only poor shot in the family."

——TSC——

(Parody on "They go wild simply wild over me.)

They go wild, simply wild over me,
They get mad just as mad as they can be;
One just crawled right up my back;
Into my haversack
These cooties are beauties
On me they're getting fat.
Every night they take a bite out of me
They just crawl up and down my pedigree
On my shirt they all right dress
Form in line and go to mess
They go wild, simply wild over me.

——TSC——

Frosh: "Father, I passed Shakespeare today."
Father: "Did he speak?"

"Fadder, dese shoes hurts me every step I take!"

"Then take longer steps and dere won't be so many hurts."

——TSC——

The school paper is a great invention,
The school gets all the fame;
The printer gets all the money
And the staff gets all the blame.

——TSC——

Fresh: "Do you like to dance in dark corners?"

Flapper: "No, let's stop dancing."

——TSC——

"When was Adam married?"
"On his wedding Eve."

——TSC——

Kriss: "She swears she's never been kissed."
Kross: "That's enough to make anyone swear."

——TSC——

"Where's the capital of the United States."
"In Europe."

——TSC——

She: "Why did they take Jack out of the game?"
He: "For holding."
She: "Oh, isn't that just like him?"

——TSC——

She: "Something keeps going round in my head."
He: "Don't worry, it won't stumble over anything."

——TSC——

She: "When a man starts to talk he never stops to think."
He: "Yes, and when a woman starts to talk she never thinks to stop."

——TSC——

He: "Who do I remind you of, dear?"
She: "Napoleon."
He: "Why, because I'm so brave and—?"
She: "No, because you're so darn dead."

——TSC——

A city and a chorus girl
Are much alike, 'tis true;
A city's built with outskirts,
A chorus girl is too."

——TSC——

She: "Babe Ruth must be a very devoted husband."
He: "How's that?"
She: "Why it says here in the paper that he ran home three times during the game."

Continued on page 89



Below you will find a few copies of letters the Alumni Editor received.

April 28, 1922.

Dear Mr. Melvin:

Tho' late I am enclosing a little write up on Automatic Telephony which I hope you will find of enough interest to publish. The enclosed would have been in your hands long before this had I not been so busy.

In compliance with your request, I am with the Western Electric Company, serving in the capacity of Foreman Inspector. I have been in Hartford for the last six month; before this I have been spending a few month here and there between Texas and the Eastern Coast.

Wishing you and those on the Editorial Staff the greatest success ever yet attained and thanking you for the opportunity of doing my little "bit" I remain always.

A Tri-State College and Engineering Society well wisher.

S. H. Nighswander.

——TSC——

Mt. Juliet, Tenn.
April 27, 1922

Dear Sir:

Your request for an article or information about my work was received some time ago. Am sorry that I did not have the time to write an article.

I am at present employed by the Nashville Bridge Co. of Nashville, Tenn., as structural steel detailer. We do all kinds of structural steel work and I have worked on office buildings, bridges, boats and other things. My last job was a 135 foot coal barge.

It might be of interest to you also to know that the Chief Draftsman under whom I work is Harold C. Wallace, C. E. '14.

Thanking you for your interest, I am,

Yours very truly,
T. L. Clemmons, C. E. '21

——TSC——

Mt. Vernon, N. Y.
April 20, 1922.

Dear Sir:

I wish to thank you for your kind invitation to submit something for this coming issue of the College Integral. At this time I cannot definitely say whether or not I would be able to have anything ready within the time you state. However, I will try and if I fail to have my article in on time I hope that you will not be disappointed as it is the best I can do under the circumstances.

At present I know the whereabouts of S. W. Hyatt. He is employed by the Allis Chalmers Manf. Co. at West Allis, Wis., and resides at 611 67th Ave.

I am employed by the United Light and Power Co. of New York City as a tester.

Sending my best wishes of success to the Engineering Society, I remain,

Yours very truly,
Robert Sovik.

——TSC——

As Alumni Editor of The Intergral this term, I have endeavored to write to most of the Alumni in the United States, for whom we had correct addresses. Quite a few responded to my call for articles and information regarding their whereabouts and the whereabouts of fellow Alumni. As my space is limited I have only been able to have a few of the letters printed in full and so below you will find a synopsis of a few more.

Received a letter from Murry Squires, M. E. & C. E., in which he states he is in the City

Engineering Dept. at Los Angeles, and that brother Milo, also an M. E. & C. E., is with the Southern California Telephone Co., in the Engineering Dept. Both '20 graduates.

Here are some more of the Alumni that he mentions: Fred Mitchel, E. E. '21, is with the Western Electric Co. in Los Angeles. J. H. Vivian, E. E. '20, is with the Southern Calif. Edison Co.

A letter from Melvin Greiser, Ch. E., informs us that he is with the Steams Foster Cotton and Textile Mills at Lockland, Ohio. He has charge of two departments and is conducting some interesting experiments in the boiling and bleaching of cotton products... A '21 graduate.

A. R. Chapell, M. E. '21, is in a machine shop in Milford, Conn. in the tool room but only till work opens up. In his letter he states that Clarence Scott, C. E., a '21 graduate, is doing map work and surveying in Norwalk.

John McIntyre, M. E., is teaching science to the youths at Auburn, Ind. A '21 graduate.

L. D. Lake is principal of a high school at Potosi, Missouri. Now what do you know about that? '21 graduate.

F. Morgan Rhodes, Ch. E., is quarantined for scarlet fever but has been teaching chemistry at Garrett, Ind. His dad wrote this letter and states if we look around a bit we might find a few tracks of his around here.

——TSC——

RAILROAD CHEMICAL LABORATORY

Melville Lowe, Chemist C. M. & St. P. R. R.

Until I came to work for the Chicago, Milwaukee and St. Paul Railray, I never dreamed that it was necessary for a railroad to have a chemical laboratory. I was greatly surprised to find that the C. M. & St. P. had both a chemical and physical laboratory.

The work of the chemical laboratory is roughly as follows. Analysis of steels, both alloy and plain carbon; brasses, bronzes, babbit, welding rods, water, soda ash used for water softening, greases, oils, paints, coal, coke, and so many other things that it is difficult to recall them all. I will try to outline each class of material and the methods of testing them as well as some of the requirements to be met.

First comes steel. Our steels are of certain classes; flues, firebox, boiler plate, boiler tubes and such. This makes it possible to use color carbon method for carbon. Saving time and money and at the same time getting accuracy as our standards are for each class. Sulphur is run by the evolution method, absorbing the H_2S gas in a 10 per cent. solution of sodium hydroxide. Manganese is run by both the bismuthate and persulphate methods. Silicon is found by the nitro-sulphuric method and phosphorous by the molybdate method. The alloy steels that come to us for analysis are not so numerous as the plain carbon steels. These alloys are nickel, chrome-nickel, chrome-vanadium steels. One sample was a chrome-nickel-vanadium-tungsten-molybdenium and cobalt, besides the plain elements.

The non-ferrous alloys used by a railroad are brasses, bronzes, babbits and solders. The brasses are composed of antimony, tin, copper, lead and zinc, in such varying proportions that it is impossible to list them. Bronzes are as a rule composed of copper and tin with some small amount of lead, and antimony. The brass part of a journal bearing is an alloy of tin, copper and a small portion of zinc, and at times varying amounts of antimony, while the bearing surface itself is an alloy of lead, antimony and tin. Solders are mostly lead-tin compositions in the proportion of one to one or one to two.

Welding rods come under all classes of material depending on what is to be welded with them and the method of welding used. We have steel, copper, brass, bronze, etc., classing as to method of use, gas and electric rods.

A railroad is one of the greatest users of oils of all kinds. We have in for analysis each day, signal oils, long time burner oil, mineral seal oil, car oil, valve oil, gas engine oil, crankcase oil, and turbine oils. These oils are run for gravity, flash, fire, viscosity, precipitation of tarry matter, carbonization and emulsification; of course all these tests are not run on each oil, but the individual oil determines the tests to be made on it. These samples that are sent to the laboratory must come within the specifications or it is rejected by the engineer of tests. The saybolt viscosimeter is the standard instrument for railroad work. We use Cleveland open cup for some flash and fire point tests; while the New York State tester is used on illuminating oils for flash point. As a rule we use the Westphal balance for the gravity tests, but in a few cases such as gasoline, we use a Baume hydrometer. On car oil we run a cold test. This test is to find the lowest temperature that the oil will flow. It is a matter of record that trains have been unable to move because of the fact that the oil in the journal froze.

Greases are of great importance on a railroad. Greases are classed as soda, lime or potash greases. These names come from the hydroxides used to saponify the oil used in making the soap contained in the grease. Rod cup greases are mostly soda grease, so are journal compounds. Greases for heavy duty are as a rule potash bases. All others are lime greases. Soda greases are hard; potash greases fairly soft and lime greases are soft and appear to be vaseline. Below is the analysis of a typical soda grease.

Soda Soap	35.05%
Free Alkali (NaOH)	.15%
Oils	56.00%
Water and etc	8.80%
	100.00%

Water etc., is obtained by balancing to 100 per cent. Another class of greases are pinion greases. These are made from petroleum still residues mixed with pine tar and mineral oil. Sometimes thy contain soaps. In these greases we determine oil, ash and insoluble in gasoline residue. The insoluble in gasoline residue is extracted with carbon disulphide its nature determined, whether it is asphalt or coal tar.

We have two classes of waters to deal with raw and treated. Raw water is as it comes from the ground lake or river. Treated waters are those that have been softened for boiler purposes Raw waters are analyzed for chlorides, carbonates, sulphates, calcium, magnesium and so forth, and the amount of soda ash required to soften is calculated. Treated waters are analyzed to see if the water softening plants are working in a proper manner.

Coals and cokes are run for volatile matter, moisture, fixed carbon, ash, sulphate and B. t. u. Moisture is determined on a half gram sample dried at 105 degrees C. in an oven.

We have two classes of waters to deal with. This same sample is placed in a Parr calorimeter and find B. t. u. The washings from the calorimeter used to determine the sulphur. A one gram sample is used to determine the other constituents.

Of course when I took my first position in a laboratory I was a little shaky as to whether I would make good or not. I found that all you had to do was to pay strict attention and do as you were told. You are always given help and shown how to do each thing. I can say this much to any fellow going into a lab. do anything you are put to do and do it well. Don't watch the clock, do what you are paid to do and then some. The "then some" is what counts for advancement. Your chemical education at Tri-State is as good as any and I don't feel that any of the fellows who have graduated from the so called "Big Colleges" are as well prepared as a T. S. C. man. So don't worry about the first job, if the boss don't like your work he will fire you soon enough. Don't let him fire you because you were afraid of your job.

——TSC——

A TIN LIZZIE PLOT IN FOUR REELS

1

"Mine at last!" checkled Sir Guy, as he snatched Rose, the village maiden, from her lover's arm.

Rose and William—her own true Bill—had been walking out together. Silently Sir Guy had stolen upon them in his Rolls-Royce and in a trice (which he always carried) had lifted her into the car, and was away.

William looked around. He wasn't round but he looked round. Ha! a Ford by the wayside, cruelly abandoned by somebody whodidn't care for it. To start her was the work of but half an hour.

2

The miles flew apace. "I have you now, Rose," exulted Sir Guy. "I don't think!" she breathed defiantly. Bang went a tire. "Spare me!" she entreated; "spare me—spare—!" "Spare wheel!" muttered Sir Guy.

3

"Villian!" cried William, arriving.

"Weilliam!" faltered Rose, as he bore her fainting to his trusty Ford (Model T—rusty).

"Foiled—and by a Ford," hissed Sir Guy—"tin-foiled!"

4

"What are we doing?" asked Rose suddenly sitting up.

"About 15," answered William, "but I can push her a bit more."

The car gathered speed—some.

"This is torture," wailed the suffering maid.

"Wazzermarrer?" asked William. "Is your faith shaken?"

"Nay," she answered, "but all the rest of me is. I must go back."

"Back!—where?"

"To Sir Guy and the Rolls. I can't stand this at any price!"

STEAM BOILERS

Continued from page 9

cumulation of scale or mud in pockets and tends to prevent the formation of adhesive bubbles against the sheets. Such unnoted spots may cause overheating.

V. Enough heating surface to absorb the heat of combustion economically. The heating surface directly exposed to the fire does most of the work.

VI. Steam space large enough to supply an irregular demand without causing a great change in pressure.

VII. Steam outlet large enough to supply steam to the engine without wire-drawing. If the outlet is not sufficiently large to supply plenty of steam, the demand will be greater than the supply and the steam will be throttled or wire-drawn, that is it will lose some pressure.

VIII. Safety Valves. The A. S. M. E. Boiler Code requires that the safety valve capacity for a boiler shall be such that the safety valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6 per cent. above the maximum allowable working pressure, or more than 6 per cent. above the highest pressure to which any valve may be set. The blow down or difference between opening and closing pressure of the safety valve shall not be more than 4 to 8 pounds as specified by the American Society of Mechanical Engineers Boiler Code.

——TSC——

TO THE WIND.

He skims a plain and o'er a mountain bends,
To lowering sky a breath tempestuous lends
Or blooms of spring, or leaves of autumn, sends
Whirling and flying.

Down some dim wooded aisle he shouts with glee
Or here an instant stays, on humble knee,
To pledge to frail wind-flower a fealty
Of love undying.

Strokes he a forest lyre, with subtle hand,
To roll of ocean drums on shore, and
Phantom shapes flings high from desert sands
Dancing and crying.

Or oft, a fickle prey to mood morose,
Beneath a wintry moon portentious flows,
A wanderer abandoned onward goes,
Forever sighing.

To the Integral. —French E. Smith

THE MANUFACTURE OF COMMERCIAL AMMONIUM NITRATE

Continued from page 11

tion of every part in the operation is kept. An average yield in this operation in 97% to 98%.

The men required to operate this system are a chemist supervisor, a general foreman, two house foremen and three helpers. This is on an eight hour shift, the operation on full time running continuousy or twenty-four hours per day.

——TSC——

THE WIRELESS TELEPHONE

Continued from page 12

tles before it is allowed to pass thru. So far as possible no one is permitted to use the mails to deceive the public. Likewise radio must be regulated to prevent its misuse.

Radio is not new by any means, as I have stated in my article before. But unlike the steam engine and aeroplane, its development has come all at once rather than gradually.

In less than one year, over six hundred thousand receiving sets have been sold in the United States and Canada. The fact that for many years the public generally saw very little in radio except an agency for intercommunication, is responsible for the slow development of the art.

The moment one or two large corporations, interested in the manufacture of radio apparatus, hit upon the plan of popularizing wireless communication by establishing broadcasting stations and sending news, market quotations and concerts thru the air, free to any and all who have an apparatus and care to listen in, the new industry, for such it is, jumped ahead in an amazing fashion.

Today you can buy a receiving set in an electrical store, jewelry shop, drug store or hardware or most any place that handles any kind of merchandise.

For transoceanic communication radio telephony has a very good future, but for inter communication here at home it is utterly out of the question. One person may use it to talk to a multitude, but the multitude cannot talk back. Likewise, perhaps the chief of police of a large city might arrange to talk to the members of his force but they couldn't answer him back.

About six thousand newspapers in this country at the present time, print the regular radio program in each issue.

Radio offers the greatest opportunity ever presented in the way of what might be defined as a great news exchange. The educational possibilities are unlimited. The greater minds among us will be able to talk to the multitude. Then going to extremes it might be stated that it would be easy for the housewife to listen in at a certain time in the forenoon and find out in a few minutes just which stores are holding sales for that particular day and also what bargains are offered.

The radiophone receivers of tomorrow will change completely from the sets now used as the present day motor cars differ from those of twenty years ago.

The possibilities of radio are endless. The radio telephone has developed in a very short period of time from what was once only a small boy's plaything to a household apparatus of value and a business device of merit. It is an invention that has a definite field and useful future. It will not be long hence that there will be more radio apparatus in use than pianos, and who knows but that it will be as great a household and business necessity as the cook-stove and typewriter.

——TSC——

COAL TAR

Continued from page 15

from 6 to 24 pounds per cubic foot. The quality of the oil also varies with the users own specifications.

To separate the napthalene from carbolic oil, the mixture is run into shallow tanks and is artificially cooled. The napthalene crystallizes and the oil is drained off. The crystals are placed in a centrifugal machine where any oil clinging to the crystals are driven off. Pure napthalene is used extensively in the dye industry. Among the many dyes made from naphthalene are naphthalene black, naphthalene acid black, naphthol black, jet black, cloth scarlet, cloth red, the naphthalene greens, Manchester yellow, diamine brown, diamine violet and diamine blue. Naphthalene is sometimes used in place of camphor in the manufacture of celluloid. It is also used in medicine as an antiseptic and as an ingredient of parasiticide ointments.

It is readily seen that a very large number of products can be obtained from the two hundred products of coal tar. The processes involved in separating the other products are too complicated to discuss in a limited space.

GASOLINE

Continued from page 13

around the outside of the coils, and this tends to condense the vapors to a liquid state. From the condenser box, the liquid is further condensed in a cooling tower, which is merely an arrangement of coils, cooled by falling water. From these coils, it runs by action of gravity and vacuum into small tanks of several hundred gallons capacity. The gasoline which has been condensed at this point has a gravity from 57 degrees to 65 degrees Be.

There is still a large volume of gasoline in vaporous form, and this passes into the compressor, and is discharged under a pressure of 50 lbs., thru cooling coils and into another set of tanks. The gravity of this product is from 65 degrees to 85 degrees Be.

Further condensation is necessary, since vapors still exist. These pass to the compressor under pressure of 50 lbs., are discharged at 225 lbs, thru cooling coils to another set of tanks. The product now has a gravity of from 85 degrees to 98 degrees Be. and is very volatile. Further condensation could be carried on, but the tendency of the product to assume a gaseous form on exposure to the atmosphere is too general, so that a "pop" valve, on top of the last set of tanks allows the high vapors to escape into the air.

Usually the market demands gasoline of a gravity from 57 degrees to 72 degrees Be.

Only the high test is used in special racing cars and aeroplanes. So for this reason, the three different strengths of the product are run together in large storage tanks, and produces generally a liquid of gravity averaging from 70 degrees to 75 degrees Be.

One of the hardest problems in the gasoline business is getting the liquid transported from the plants. The Interstate Commerce Commission has laid down a set of stringent rules regarding this. A sample of 100 c. c. of the gasoline to be shipped must be taken, and subjected to a distillation test. Then a vapor tension test is run. If the gasoline exerts a pressure exceeding 10 lbs, to a square inch, while confined, at a temperature of 100 degrees F. it can not be shipped. The gravity must be lowered by mixture with inferior grades. Tank cars for transportation are not guaranteed for a greater pressure than 10 lbs., to the square inch.

After tests are made, the cars must be labeled with "Inflammable" tags, and all journals in-

spected and well oiled. All these precautions are necessary, because of the tendency of gasoline to explode when in the vicinity of a spark causing loss of life and property.

After the product has reached the refineries it is usually mixed with kerosene, benzine, or some other oils, to lower its gravity, and so make it suitable for use in the modern type of gasoline engine.

——TSC——

DOWN OKEECHOBEE WAY.

There's the palms and there's the marshes,
there's the flats and there's the glade,
There's the sawgrass and palmettos and the dark
skinnd Injun maid,
There's the sun a-making bubbles on the filthy
stagnant slime,
There's the shack made of palmettoes where I
used to spend my time;

There's the wild cat that's a-singing at the low
hung crescent moon,
And the screech owl's cry a-ringing out across
the muck lagoon;
There's the quick sand that looks peaceful, but
will make of you it's prey!
If you try to cross the marshes—down Okee-
chobee way.

There are men who went and vanished, n'er
to return no more,
There are those who never venture from Lake
Okeechobee's shore,
But there's a man who fearless wanders 'neath
the scorching blazing sun,
With ideals to be accomplished before his great
task is done.

Yes he's there because it's duty and it's there
he's going to stay,
Till the marshes yield their riches—down Okee-
chobee way.
He's contented and he's happy and he's always
filled with cheer,
For he's one of those predominate beings—the
Civil Engineer.

—Daniel Ross '24.

——TSC——

After the ball game was over
Katy took out her glass eye
Put her false teeth in cod water, and
Hung up her bottle of dye.
Threw her cork leg in the corner,
Hung up her wig on the wall.
There wasn't much left of poor Katy
When Katy came home from the ball.

CALENDAR

Continued from page 36

tion of Big Jeff as temporary chairman and Bill Blakey as temporary secretary the class proceeded to elect its officers. The presidential nominations were made accompanied with speeches that would make an old time politician green with envy. Lewis, Bolquerin and McGinty did the nominating and did it up brown. Ray Oltman, Swede Linquist, Paul Lefever were nominated and Lefever elected. For vice president Weil, Pettigrew and Big Jeff were nominated. Big Jeff was elected. Bob Phelan and Jonnie Dalton pulled the lady's man stuff by nominating Miss Shorty Johnson for secretary. The other nominations were Blakey, Miller, Marshman; Blakey was elected. For treasurer Bars and Weil were nominated, and Bars was elected. Prof Bailey was unanimously elected class professor. About this time Prof. Fox opened the door and stuck his nose in, but the atmosphere was too warm for him and he beat it without saying a word. After the election Paul Lefever assumed control and was called upon for a few remarks. After which the meeting was adjourned. At the Engineering Society meeting plans were discussed for this year's picnic. It is to be the best ever. Those present received some valuable information on book selling contracts and battery service stations. These meetings are worth while and more men should turn out on Friday evenings. The weather continues to stay cold and today it snowed just to show that it wasn't time for baseball as yet. Bridge design class today was turned into a debating class when McGinty and Prof. Niehous had a heated discussion on capital and labor. George Decaneq was seen in a new spring suit waiting for the two o'clock train, headed for Garret again George?

Saturday, April 1st—It cleared up and the sun came out today much to the delight of our baseball friends. Betty Kaylor and Florence Mussellman arrived in town on the noon train as did Miss Margaret Yopst. Shorty Layzell played the part of entertainer and we hear that he made a great job of it. Red Marshman journeyed south to meet his wife who is coming to stay the rest of the term. She no doubt thot he needed protection. Caught Steward dashing around town with two women—stingy. "Uncle Ford" Bergan called up one of his little high school girls and made an appoint-

ment for that evening. When he got there she wasn't home—somebody else beat him to it—too slow Berg. Thomas spent the evening trout fishing in his room and Ted Lewis spent it blowing glass.

Sunday, April 2nd—The weather continues to stay warm and the sun to shine. It was reported that Florence Gage and Ruth Nash were dissappointed last night. Ruth so much so that she woke up crying. Don't let it happen again Tommy. Florence entertained company from LaGrange and the poor fellow had to take eight along when he went for a ride with her. Tough luck but during the drive we got the goods on Coppess. It sure must be great to be invited to go driving on a nice Sunday afternoon. Tommy Reese said that nothing had been heard of Marshman as yet but that his wife's trunk had arrived. Boykin and Phelan were visitors at the Snyder dorm this evening. Seems as if the whole school was out walking. We caught Queenie walking alone—something wrong somewhere. J. Bender opened his new hash house and a goodly number of the students gave him a trial. E. Hoidahl got back from Chi today.

Monday, April 3rd—Perry, our Engineering Society president, was up and at work bright and early this morning. He had several notices on the bulletin boards before the eseven o'clock classes convened. Prof Bailey announced to the grads that final adjustments and corrections of credits would be made this week. This was a sure enough important announcement to some o fthe hopefuls. Bill Pfiefer's night callers paid him another visit last night. The lock being too strong for the gentleman or gentlemen they cut the glass out of the door window and set it on the floor inside without even cracking it. That proved they weren't cracksmen. They also paid Mr. Lampman a visit and at his place they took out one of the windows. Bill and Yeakle claim that they weren't fishermen 'cause they didn't touch the expensive fishing outfits that they had in the place. Domer, the chief of police and the whole police force of Angola, was on hand bright and early to endeavor to .solve the mystery. Sheriff Adams imported a couple of blood hounds to help untangle the affair. Nutto and a gang of others followed the hounds so as to be sure they didn't follow them. Nutto and Mangansen caught it in steam engine class today and they weren't to blame—not much. The first base ball practice was called for today. Tommy Reese had about forty men out and altho the diamond was too wet to play on he let them do some hitting and throwing. He has the material for a good team and it looks like a good season for old Tri-State on the diamond.

Tuesday, April 4th—Class meeting was called for three forty-five by the president. Committees for the making of all the necessary arrangements for graduation were appointed and told to get to work. The weather still is warm and so the boys got in another afternoon of practice. It is reported that Shaver, Sam Cosad and Jax were entertained down on North Wayne street by three of our little high school girls. They spent the evening playing real fascinating games like hide the piano, drop the handkerchief and basketball, using pop-corn for the ball and their respective mouths as baskets. It was some large evening and the start of Sam's romance. Prof. Roush has joined the fisherman's club but unlike all the rest of the members he hasn't made a catch as yet

Wednesday, April 5th—Staff meeting called for 3:45 in the Integral staff office. Spike Thomas spent the evening out among them. George Anderson seems to have deserted the bachelor club as we caught him strolling about town with one of the fair sex this morning. It sure will be tough on Spicer if he does break loose. Coppess got a letter from Eaton with a raft of snapshots in it and is all smiles. Jonnie Dalton spent the evening teaching the calandar man to play billiards. Shouldn't give such big handicaps John.

Thursday, April 6th—Frank Spayth started the day in regular form by getting to his seven o'clock class just as it was being dismissed. Charlie Hall's mustache is getting so long that it is beginning to trouble him in classes. Red Paulson was out dashing aroung in a fliver all afternoon. Great stuff. Ray Oltman got up so early this morning that he was able to attend his seven-fifty class. But it was too much for him so he left for "Chi" to spend the week end to make up for it. He says that he comes from there but we believe that "she" does also. Music hall seems to be the Mecca for all the fellows looking for problems or help in some form. With Gillette, Tiechman, Roush, Ringenberg and Nelson, the fish of the shark species, they generally find what they are seeking. Even Johnnie Dalton used to be seen hanging around there quite a bit.

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Friday, April 7th—George Decanq and Bernie Walker were very anxious about the noon train from the south today. Later George was seen with two "strangers" but Bernie couldn't be found. Barney Weyers has been out of school for several days, Rideout and Miller claim it was the old convenient back ache. Attorney Clyde Carlin spoke to the Engineers at the meeting tonight and his address was worth hearing. The band furnished such good music that the meeting time extended past the twentieth hour and the business meeting had to be dispensed with. Great stuff boys, it sure was good music. The tennis fans under the direction of Bill Blakey put several hours of hard work in on the tennis courts.

Saturday, April 8th—Spike Thomas, Fadis. Spiecer, did some performing on the square for the benefit of the farmers and those of the student body who were present. Walko is out of town again this week end. Down in the sticks to see some district school marm I am told. Wonder what Savada does for argument while he is away. It is reported that Freddie Green cleaned up on Zippo. Red Nisson says that he made a good job of it. Coppess was rearing around town tonight in great shape. Fine business. Sid and Red took advantage of the absence of Benjamin and Elliott and put on a real nice little party. Next time you boys want to invite the coal miners too. Bailey is leading all the boys from Austin's a merry chase. He hasn't missed a night out in two weeks and is still going strong. Henry Charlton and Doc Bell were giving the folks on Wayne and South street a display of their musical talent. The boys at the boarding house advised them to use a little strategy and have the rock pile removed.

Sunday, April 9th—"Uncle Ford" Bergan had a date with a little high school girl and took the whole family to church. Didn't they like your looks Berg? Coppess went about town today with a long face saying mean things about this being a dead town etc. Boykin, Gaynor, Gruenwald, Long and several other of our baseball stars journeyed to Loon Lake and helped the team from that place win a 17 to 0 victory. Dutch Weyers and Kyke Rideout walked out to Lake James and back. What's the attraction so soon? Dutch Miller was stepping out today. Can't you wait for the mid-spring Dutch? Dick Steel got back tonight after spending the week end in Battle Creek. He

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says that it saves him a few stamps to spend a few days with her. I'll say it saves him a lot of ink according to the reports by Weil. Ray Oltman arrived from Chi and seems well satisfied with the adventure. Rubush, Reese, Rogahn and Kohli were seen out jumping rope this afternoon. Bet they were thinking of the days gone by. Paul Blough made a trip down to Fort Wayne. For what he didn't say but you can judge for yourself.

Monday, April 10th—Bunde made his appearance driving a Red Devil. Some class to the way some of these boys step out. Early in the afternoon Huxter, Linquist, McNeill, Wailes and Anderson opened the tennis season in due style. It rained later on and spoiled baseball practice for the day.

Tuesday, April 11th— Dana Paul Mitchell, '19, now studying and teaching at Columbia University made his appearance in the bookstore during the morning and renewed acquaintances with many of his former students and friends. It sure seemed good to have him back among us for a while even if he was our Prof. while here. Spike Thomas is going it strong and with the same co-ed too. Tonight made it six out of seven, a record that Spiecer can hardly beat. Baseball and tennis suffered today because of the continued rainfall. Band rehearsal tonight. The boys are preparing for a public concert to be given on the square up town. Dick made his appearance at the boarding house today. He said that he came early to get a good start on the mid-spring and summer term.

Wednesday, April 12th—Pres. and Mrs. Sniff left this morning to drive thru to New York City. Dana Mitchell is driving the car and we all wish them a speedy and pleasant journey. There was a class meeting at 3:45 in chapel hall. Discussion was sharp as to the class pin of this year but Weil and Jeffery after several wonderful parlimentary maneuvers left things in as unsettled a state as they were before the meeting was called. A meeting of the Athletic Association was held at 6:45 in chapel hall. Tennis and baseball were the main topics of the meeting. Notice appeared on the bulletin board containing information relative to the Engineers Picnic. Looks like it will be a big thing this year.

Thursday, April 13th—The weather cleared up and baseball practice was resumed. Tommy

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Reese cut the squad and Big Jeff got sore 'cause he was left out. Tennis enthusiasts were invited to part with four bits to help get funds together for fixing up the courts. Jim Pettigrew left the chem. lab. to go to class and asked Gob Akers to watch some boiling water. Akers is such a good chemist that he let the water boil away and break the flask.

Friday, April 14th—Posters appeared announcing a baseball game for Saturday afternoon. There was a meeting of the picnic committee today. It rained again today and spoiled practice. As it didn't let up it also vanished hopes for a game on the morrow. Engineering society meeting. Some of the boys had a dinner and smoker in the Elk's dining hall which was asplend'd success.

Saturday, April 15th—Jax left on his usual week end trip to Lansing. What's to become of the Ohio, New York and Indiana girls Jax? Shipman is also one of those who slip away over the week end but we caught him this time. Waterloo isn't a big place but they say that good prizes come in small packages. These two weren't the only ones to skip out of town over this week end but they do it so regular it is beginning to look serious or bad, one or the other.

Sunday, April 16th—Today was Easter Sunday and everybody who could went to church. Several of our student body were recognized among the Knights Templar who attended the services at the Christian church in full form. Tucker, the ladies' man, had a hard time to break away and go to dinner. It sure was a shame that they had other arrangements for the afternoon and evening. The day was warm and nice, for a wonder, and the Easter parade was worth while watching. A goodly number of the boys had invitations out to dinner today and all did justice to the meals served, according to all reports. George Roush was over calling on Jeanette, on North Wayne street, and spent the evening playing such wild games as drop the newspaper, jump over the porch railing and other popular games. Mick Earl said that he must have felt real kittenish to pull such stuff. Dick Steel, Al Melgarde, and Weil made a trip to Fort Wayne by machine and when they got there Al fell for a little brown eyed baby and left the gang, coming back on the train. Must be great to be handsome. Those Garrett hounds were at it again and as a re-

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sult many sleep eyes will be seen in classes tomorrow.

Monday, April 17th—The day dawned bright and fair after a rainy night and hopes for a baseball game at Hillsdale were high. The team left the campus at noon making the trip by machine. Within an hour several other cars were on the road despite the rain and dreary weather. Mick Earl, Carl Bars, Jim Pettigrew, Dutch Miller and the calendar man made the trip in Frank Spayth's machine. After getting a good wetting and a mud bath, having to run thru water over the running board, getting stuck and wet; the gang at last arrived at Hillsdale, wet and dirty but happy and enjoyed the game all the more for the hardship. It was a good game and of the girls hadn't been alowed to sit in the front row where the fellows couldn't help but see them, our team might have won. After the beginning of the mid-spring term our players wont be bothered any more. Altho we lost 6-2 the boys played an air tight game and showed up well in all departments except hitting. When noses were counted at the game it was found that one third of Ship's Calc. B. class were at the game instead of in class. Momartz and Lunden spent the evening discussing and fighting over the life of a bookseller. Momartz sold them last year and Lunden is going to sell them this year. At least he think he is.

Tuesday, April 18th—Bernie Walker confesed that if the calendar man knew what he was doing out of town he would have enough news to fill the whole calendar. We may not know what he is doing out of town but we do know what he isn't doing in school. It is reported that the romance between "Good Looking" Sam Cosad and "Dodo" Miller is progressing favorably. For further information speak to any of the Miller frat who have had to put up with the affair. Big Jeff seems to be off the women theis term as he can be found in his room any Sunday evening instead of traveling south as he has heretofore done. Something wrong somewhere because it is reported that Phil Hedges is doing some studying this term. Baseball practice was resumed to-day and plans are being made for the trip to Manchester this Friday. Roush had a box of live craw fish for bait but some one beat him to it and he slept with them.

Wednesday, April 19th—Rained and snowed a bit at noon. Boykin, Reese, and Phelan

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spent the afternoon fixing the ball diamond in preparation for the game Monday. During the afternoon it blew up cold, snow and rain being on the program instead of baseball and tennis. Lawrence met his Waterloo and we hope that Shorty leads him a merry chase. Tucker just can't keep away from them women. Pretty soon he will be going to class with them. He is even taking Benjamin, our old coal miner, over the rocks with him. Momartz and his roommate Rudolph seem to be getting along fine regardless of the fact that Momartz has gone into the musical business.

Thursday, April 20th—The Marcus Show comes to town for a three day stay. Most of the boys are seen heading that way instead of homeward after supper. Our assistant ed-in-chief was seen out strolling the afternoon and with a fair co-ed too. Was it Brownie, Andy? Seems kinda strange to have him stepping out being as bashful as he is. Perhaps his stock-room job has gotten him over that.

Friday, April 21st—The ball team left for North Manchester during the morning, making the trip by machine. Shipman was called to Auburn during the afternoon and Wailes had a crack at the Calc B. class and didn't let them down easy either. The senior class had a meeting during the afternoon at which there was more fun and laughter than at any show that ever played this town. The engineering society meeting was well attended. The speaker of the evening was Mr. Walb, of La-Grange, a member of the state board of engineers. His talk was very interesting and cleared up the misunderstanding of the new state law regarding professional engineers. The band was out strong and the music was exceptionally good. When the news arrived at Loves' sporting headquarters that T. S. C. had defeated Manchester 12 to 2 the crowd went wild and everybody began to theorize as to the outcome of the Hillsdale game to be played here next Monday. Some of the boys had the chorus of the show up to the dance and made a hit. Wheeler Cole and Ted Lwis entertained some out of town girls and then Cole came around and spoiled it by saying that the young lady was his wife.

Saturday, April 22nd—Harry Underwood was seen piloting a "nice little doggie" about town all day. Some of the "poor little show girls" almost lost their jobs because some of the boys

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tried to show them some of the fine points of college life. We wonder if Tucker was among the teachers. The dance was well attended and everybody present had a good time. Some had a better time than others but all in all every body was stepping high, wide and fancy. Walko breezed out of town again for the week end as did Shipman. Travis spent the morning entertaining the kids by burning paper in the cannon on the square and then blowing it out of the muzzle with a system all of his own Sheriff Adams attracted by the crowd of children started an investigation and asked Speed what he was doing. Whereupon Speed replied "just playing". Must be great to be childish huh Speed.

Sunday, April 23rd—It was a nice day and the walkers had another session, some alone but then some with co-eds. The Garrett hounds made another trip south and as usual didn't get home until time for their seven o'clock classes Some of our mid-spring co-eds came in today. The forerunners of the long looked for crowd that will arrive during the week and the first of next. The boys of the Miller frat had a little party and all evening our friend with the mustache (?) Charlie Hall, spent the evening calling for Harriett. Who is this a new one Charlie? Sam and Rouse made a trip to Fort Wayne in the evening just to see what the town looked like. Russell Weil had a dinner engagement, so he says, down at Montpelier. Gee, it must be great to be handsome and able to drive a nice car around. How do you do it Russ? What did you do with Dick this time?

Monday, April 24th—The day dawned bright and clear much to the surprise of the old timers who know the weather of this place and that rain should have been on the program instead of sunshine. Spirit is running high and a great game is looked for to even the count for our defeat of last week. At 2:30 the band assembled on the north side of the campus and marched from there up to the diamond at the head of a procession two blocks long. The music was great, the spirit at a high pitch and the team in a fighting mood. After marching once around the field the line broke and scattered filling the grandstand and baselines. The game was the best possible and not a score was made until the fifth inning and then each team pushed one man across. In the sixth Hillsdale got two men around and Tri-State

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one, but in the eighth old Tri-State pushed two more runs over and won the game 4 to 3. Boykin was the hero of the game, pulling down an almost impossible catch in the ninth with two men on and one out, making a double play to third. Captain Phil Hedges was the leading hitter getting a triple, two-bagger and a single along with a pass out of four times at bat. All of the team deserves credit for their splendid work and hard playing. Keep the good work up boys. Many favorable remarks were heard about the band. The music they furnished sure helped to build up a winning spirit which coun's a lot in winning a ball game. Mick Earl got back from Chi on the evening train.

Tuesday, April 25th—Today it rained and was disagreeable but no one cared. After the good weather of yesterday and the ball game, that is the talk of the campus, a little thing like the weather doesn't worry us a bit. The band had another evening of workout. From reports they are going to break out in style in the right near future. Because of the weather the baseball team was given a day off. McNeil had to take gas to get his mustache shaved off so he could have his graduation picture taken. Cash and Davis, our two salemen of note, are busy getting a line on some of their friends. Jentoft is taking things easy but we believe there is lots of pep left in him yet. Larson, our blondie from the far west, is beginning to step right out these days. Be careful old boy the mid-spring term will be here soon. Lawrence Dresser, our Michigan friend from Mobile, sure likes to let us know of the advantages and opportunities of both places.

Wednesday, April 26th—The weather continues to stay damp and raw but, despite all this Tommy Reese and Phil Hedges had the team out for a short workout. The whole gang up at the Austin dorm put the evening in playing cards. It sure must be great to be a coal miner and get your lessons so quickly that you have evening off to play cards. Anderson is making it a pretty serious affair. Remember Queenie what you left when you came to school. If Boykin doesn't stay away from the Snyder dorm there is likely to develop some strong competition. Johnie Dalton and Wilma made an excursion out to Fox Lake and during the afternoon had a great time boating. We understand they had a hard time changing places and that they almost tipped over trying to

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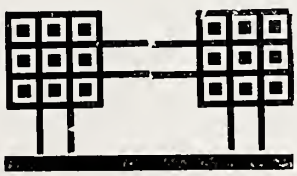
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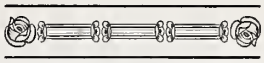
Thursday, April 27th—The weather cleared up nice today and the baseball team got in a good afternoon's workout in preparation for Saturday's game. Posters appeared announcing a game with the Cresto A. A. of Fort Wayne, for this Saturday afternoon. These co-eds are sure taking the boys for a merry chase. One even roped Shorty Layzell for a trip to the movies tonight. "Judge" Leonard arrived in town tonight after spending some five weeks in the east on a business (?) trip. He announced to a small gathering of friends that he had met his Waterloo in Washington and was going to be married there this summer. What is Flossie going to do George? We heard some awful reports about Weil going into a restraurant after the show and having the shoulder of his coat covered with flour, powder or something of the sort. All would have been well if he hadn't tried to explain something about shaving just before coming down. Better get a light colored suit for evening Russell.

Friday, April 28th—Shipman gave Mick Earl the prettiest compliment about his getting away with things on his good looks in Mechanics class this morning. This made Charlie Hall happy, as he is a bit put out because Mick put a few over on him. Soriano is around chasing all the staff members into Cline's to have their picture "took". Weather is clear and the tennis fans were at it before the seven o'clock classes convened today. Engineer's meeting in chapel hall at 6:30 or thereabouts. The dance and movies had an unusually large attendance tonight. Must be that the boys are getting used to the places so as to be in trim for the last six weeks.

Saturday, April 29th—The day started out bright and clear and hopes are high for seeing a good ball game. The Crestos, who defeated us last year 5 to 4, arrived in town on the noon train and were well received. The turn out was very good and the game better. When it was all over and the dust had cleared from the base lines the score stood 19 to 4 in favor of our team. Garnett pitched a wonderful game and had the crowd with him all the way. Bill Nutto on third played a steady game and deserves credit for the showing he made in this new position. As usual Captain Phil Hedges was the star of the game, fielding perfectly and

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batting superbly. All of the other members of the team also deserve a whole lot of credit for their team work and good spirit. The dance tonight again was well attended. Judge leonard was there in all his glory but he had to go some to out do Rannie and Gaynor who were doing some fancy stepping. Cart was a bit peeved this evening because a party told Prof Shipman that said Cart had a Calc notebook. Nothing to worry about, old man, you aren't alone.

Sunday, April 30th—This day of rest was well used by most everybody in town. Hardly a soul could be found until noon, showing that one day they got in some tall sleeping. During the afternoon cameras were out in force. Being as it was a nice day there should have been a goodly number of good pictures taken. The path to Fox Lake is being trod by a large number for so early in the season. There was a May-pole party out at the cemetery this evening. John Quinn and Tucker, the ladies' man, were the male fairies and we promised not to tell who the girls were. It wont be a hard guess for anyone who knows where Weil lives. They had some time but it is a shame to take advantage of the dead and walk on them so. The annual pilgrimage started to the station to meet the trains from the south. To-night the boys were out in force. As usual there were only a few fair ones on the train but Shipman arrived with a new top coat that made up for the lack of co-eds.

Monday, May 1st—The morning and noon trains were met by the pilgrims and today they were rewarded by the arrival of a dozen fair school marms. The campus was well stocked with engineers who spent the best part of the day greeting friends from last summer and looking over the new ones. Things begin to look refined as the boys are laying aside their flannel shirts and sweaters for white shirts and coats. It sure makes a difference in the dress when the ladies come in. The arrival of the girls made Wheeler Cole homesick and while in Calc class, physically, he soared to heights unknown and wrote out the following little verse for the calendar:

Girl of my heart non can compare,
Eyes are so blue and lips so red.
Girl of my heart I've loved you from the start,
Oh, girl of my heart will you be my sweetheart.

This would be all right if itwasn't for the fact that Wheeler is a married man. Band practice



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was held this evening after the boys had been down to meet the evening train.

Tuesday, May 2nd—The campus hounds were on hand again today and seem to be holding down the grass to the best of their ability. Chapel was well attended as it always is at the beginning of each term.

Tuesday, May 2nd—(cont.) Class meeting was called fo rthis afternoon at which the style of inviations was changed. Much to the delight of those who were against the first selection. The band gave a public concert up on the square in the evening. The music was well rendered and a large crowd was on hand to enjoy the treat. The fair co-eds were out in force and made things look real inviting. The band deserves a whole lot of credit for their splendid showing. Each time they step out they seem to do better which is a good sign. The Integral Staff dinner and business meeting was held in the Elk's dining hall. The affair was a splendid success and there was more business done than at any three other meetings held during the term. Flohr's T. S. C. 4 put on a dance up to the Elk's after the band concert. All of the steppers among the co-eds were on hand and the affair was a lively one. It is sure great to see the hall crowded and more than six girls to dancewith. Looks like we are going to have a regular banner spring term the way things have started.

Wednesday, May 3rd—It rained during the morning but cleared up at noon time. Classes in Campusology are being formed by degrees After we'uns get a little better acquainted I'll vouch to say that the classes will be large and going strong. Poor li'l' Russell Weil is a bit put out this morning cause—well we don't just know why but perhaps Queenie or "Red" could explain. Several couples of this institution made a pilgramage to Fox Lake where they held one of those delightful little parties known as a weinie roast. Russell arrived home early so we suppose the party was a huge success. Tucker is still going it strong as is Quinn.

Thursday, May 4th—Chapel has a record attendance this morning. It seems that at the beginning of every mid-spring term a young man's fancy lightly turns to chapel etc. Moven at 9:10 gives the girls in one of the classes an in Municipal Eng. class tries to sell and electric exhibition of some fancy army drills. Spayth iron and an ironing board. What's the matter Frank, not enough money in engineering or

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If you keep scratching for business
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The lack of it, and anyway there
Is always some business.

are you breaking up housekeeping? The new mid-spring term students have a treat—a thing unusual in Angola—it RAINED and lots of it too. The Athletic Association held a large mass meeting this evening in chapel hall. The turn out was good and the spirit is running at fever heat. The new grounds are going to be fixed and soon too. A goodly number have signified their intention of journeying to Hillsdale on the morrow to see the game to be played there. Engineers held a meeting this evening instead of Friday as most of the officers ar intending to go to Hillsdale and do not intend to return in time for a meeting the same day.

Friday, May 5th—The weather looks better this morning and spirit is rising for the game this afternoon, which accordng to all indications should be a humdinger. About noon twelve or fifteen cars left town for Hillsdale carrying no less than one hundred enthusiastic rooters to help the team along. Micky Earl knew the road so well that all you have to say to him is M-23. They got there in time for the game despite the fact that they went past Hillsdale and didn't know it. The game was replete with thrills and the spirit of the crowd was in unison. Three made the trip on a motorcycle and five on Red Paulson's "motor." In spite of the fact that we lost the game the Angola boys showed lots of spirit and were in command of the situation at all times. The return trip was full of fun for all and every body is talking about the game for Monday.

Saturday, May 6th—The day started early for those who heard the shrill blast of the fire whistle and answered its call for Angola's fire department had a little job about five forty this A. M. A number of students were out to-day to help work on the new ball diamond. Weil has a new trick with a couple of matches by which he can tell you what you said to the last girl or boy you were out with. Ask Gaynor, he had it proved to him. Rip Paulson had a little accident in front of Goudy's and after it was all over he limped away. A little later he was seen with one eye closed and a game leg. Tough luck old man, we all trust that you won't be out of condition long, 'cause we sure like to see you dashing in that bus of yours. Had a litlle rain again to-day as per usual. Hope it clears up long enough to let us have a game on Monday. Bill Blakey and the rest of the boys who are forever making



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those infernal week end trips, left town again to-day. Something went wrong as Walko didn't get to go. Maybe the old folks are tired of feeding John. The dance had a very good attendance and the musicians reaped a harvest. Great how the dances attract so many during the spring term.

Sunday, May 7th—The day was warm and fair. The Angola town team made a trip to Butler to play the team from that place. A goodl number of students made the trip. The Angola team won the day 7 to 1, and everybody was happy. Russel Weil could be heard all over the grand stand. His wit and humor drew man a laugh and retort from the Butler folks. Bill Blakely exhibited his skill as an automobile mechanic by repairing a car in jig time and getting back to Angola O. K. Poor Jim, our Editor, fell down on the job and didn't get in until 3 A. M. The usual Sunday evening crowd was out to meet the train from the south. It is beginning to be a real thing with some of the fellows since the mid-spring term has started. Boykn made his usual Sunday evening trip to the Snyder dorm as did his pal, Bob. Barney Wevers even stepped out and dashd about for a while with one of our little co-edsi Gduenwald was seen out walking on most ever street but the well lighted ones. Who was it Elmer, won't you bring her out in the light so we all may know? We wonder who it was with Queenie lsat night. Weil or Florence Musselman entertained a friend from Wabash over the week end, much to the delight of several of the fellows.

Monday, May 8th— Campus classes started right after the seven o'clock classes let out and grew in strength as the day passed. Signs appearing announcing the Hillsdale game for this afternoon. Spirit is running high and after the defeat of last Frday the boys are out to even matters onc eagain, and then for that deciding game.

The crowd at the ball game sure was in good humor and rearing to go. The game was close and good, despite the fact that it was called at the end of the tenth inning so that the Hillsdale team might catch the train north. Although the score stood 1—1 at the call of time it was anybody's game, each team lacking the necessary punch to put across a winning run in a pinch. It is sure a great thing, this giving of free tickets to the movies. The show was crowded and the fellows took advantage of its

When You Need Refreshments

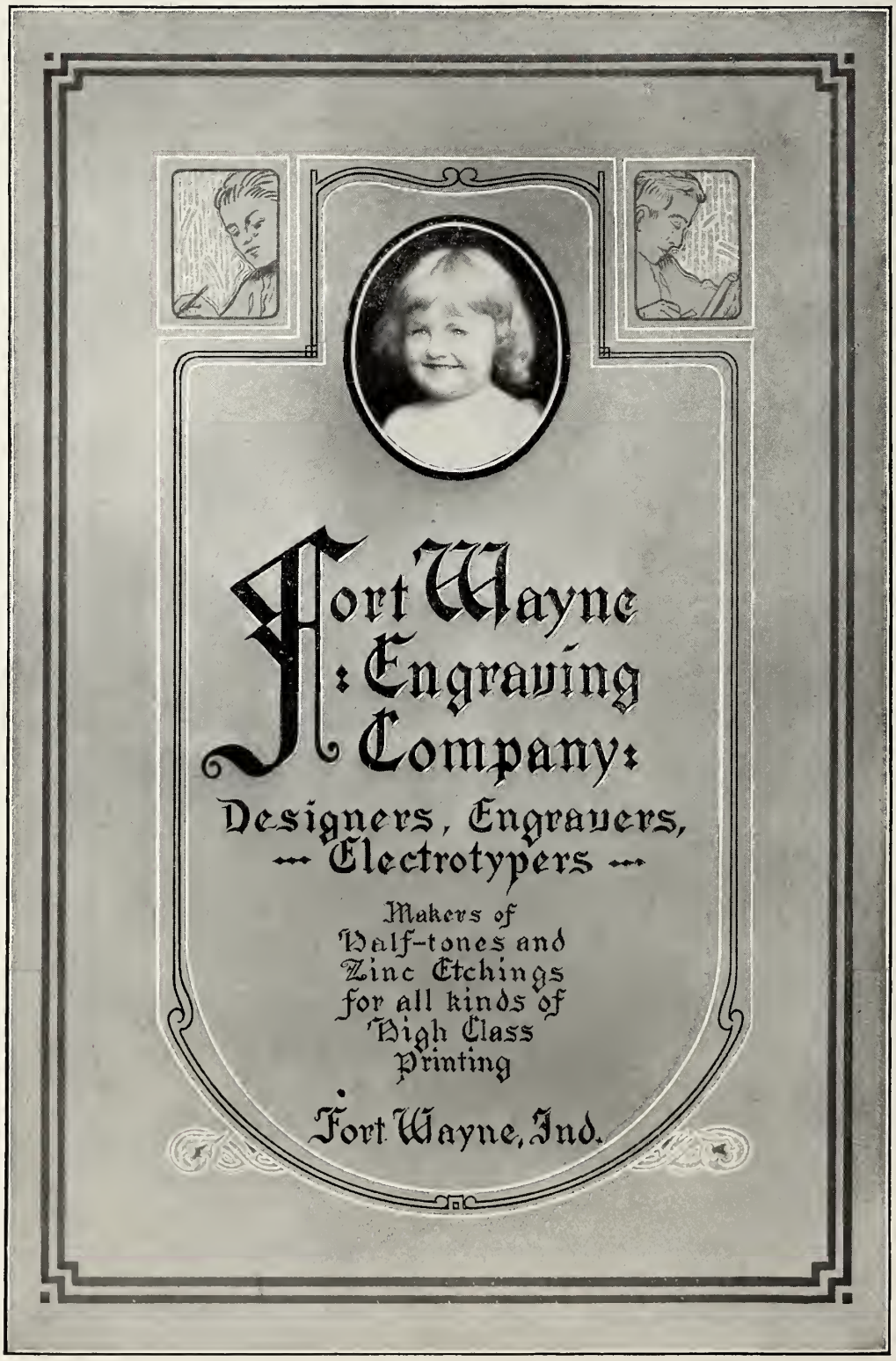
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being Monday night and slipped a lady in on a free ticket, too. It is a great way to cut down on expenses. To-night at the differnet rooming houses this afternoon's game was played over and over, each fellow having a different suggestion as to the fine points of the game which would have won it. It is reported by our friend "Fat" that our outfielder, Boykin, was "born slow and grew lazy." It sounds queer but she ought to know. The evening wind was cold so the parlors caught it instead of the porches and swings. I would suggest that some of the co-eds either pull down the shades or close the door leading into the lighted hall.

Tuesday, May 9th—Russell Weil left this morning for a motor trip to Cleveland, and asked that his little Queenie be well taken care of until he gets back. She will, Russell, but you had sure better hurry back. Lochner kept the Chemistry class in an uproar all period with his arguments and cross talk. Not to mention his and Foley's accurate chalk throwing. Things are sure enough dead this afternoon. Campus classes are few and the weather cloudy and damp. At about six-thirty we had to have our daily rain or something would have happened. Several couples went up town in all the rain and had to be disappointed because there wasn't a dance. Snyder Dorm is sure catching it these days. There wasn't an empty chair in the place tonight, not to mention the steps being used. Because of the rain some of the fellows got some much needed studying done. It is rumored that the co-eds will put on a program at the Engineer's meeting this week. If they do there will be a big turnout. Posters appeared announcing the games for Friday and Saturday, with Manchester and Huntington.

Wednesday, May 10th—It rained hard during the night but let up in time for the early risers to go to their seven o'clock classes. Campus classes had to be called off due to the wet grounds. George Gaynor reports that the near conflict betwen Spike Thomas and Jim Rennie has been indefinitely postponed. Too many women in school these days to argue over anyone. During the morning the sun came out and things began to look alive again. "Greaser" Morgan was around shaking hands this morning. So far haven't been able to discover the motive back of it all, but that there is one we don't doubt. Hand shaking seems to be a very catching thing these days. Shipman is being kept in smokes and Rouse's arm is sore. Seems

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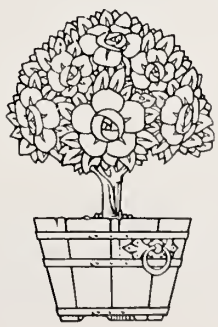
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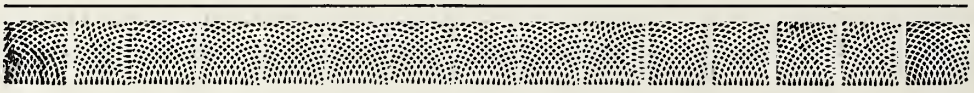
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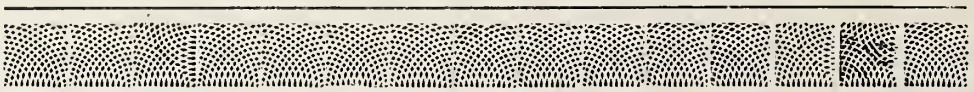
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that Lefever and Freeman have escaped the ravages so far. The afternoon warmed up so nicely that the ball team had a long workout in preparation for Friday's game. Queenie was on a party up into Michigan and made several real interesting, what one might call "confessions." It is indeed too bad that they cannot be printed here 'cause they would be of interest to all I am sure. The benefit show for the grads at the opera house was well attended and the music rendered was good. The girls who are rooming next to Goudy's say that they are enjoying themselves immensely. The "Trash Gang," as they are called by some of the co-eds, sure enough put out a "line" that would amuse the most cynical grouch. The moon was so bright that most of the strollers lost track of the hours and ten o'clock rules suffered a bit. It is excuseable on a night such as tonight.

Tuesday, May 11th—The day started off clear and warm so that the campus classes had an early lead. Tennis was in full swing again and the courts were crowded all day. Base ball practice during the afternoon showed up well. At supper time Doc Bowers and Ray Oltman went dashing about town in their "one mule power" rocking chair. It sure was a treat and the parasol was just the thing to put the finishing touches to the outfit. Barnum surely would have been green with envy had he seen that hook-up. The benefit show at the opera house was well attended again to-night and the singers had spunk enough to appear a second time and inflict their so called music on the audience. They say that the doors had to be locked. I am not sure if it was to keep the crowd out or those inside in. Being as it was a good moonlight night, making two in a row, the Romeos had their Juilets out. The owners of stringed instruments were at it in force all about town. There wasn't a street but what was being entertained by one or more groups of entertainers, both by muic and song. Huxster, the boy who keep all the neighborhood of a certain young lady's house awake nights, was out and at it again tonight. They say that this makes it every night without a miss so far since the mid spring term started. Class meeting today which was real snappy and well attended.

Friday, May 12th—Another clear day altho' there are some clouds to be seem. You may take this as you wish. Barney Weyers thot he was in a club room instead of Steam Engine

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class today and so sat himself up in a window and lit a cigar. And he got away with it too. It rained about noon time so as to spoil all chances of our having a baseball game today. The Engineering society held a special meeting tonight. The program was varied and put on for the most part by the young ladies. A reading was given and the Angola High School Girls' Quartett rendered several selections. Mr. Jim Pettigrew sang and Mr. Raymond whistled, after which the entire attendance joined in singing some of the latest popular songs while Mr. Beverly played the piano. The dance was well attended as were the movies.

Saturday, May 13th—The weather cleared up a bit during the night and hopes for a ball game today are bright. The band was out in force and paraded about the square and out to the ball park playing as they had never played before. The crowd at the game, altho it wasn't large, were treated to some unusual baseball. Errors seemed to be the object of the game and altho Tri-State won, it was no credit to win such a haphazard game. There was no baseball to it at all, just old time sand lot kids play. The movies had another record crowd and the dance again tonight was crowded. Yet despite the fact that there are so many co-eds in school the fellows far out numbered the fair sex at the dance. Slim Flohr left for the south today to undergo an operation and wont be back until the end of this term or the beginning of the next. We all wish him a successful trip and a speedy return as his banjo is sure missed on dance nights.

Sunday, May 14th—Today is Mothers' Day and the churches had a record attendance. It is sure good that there are some days that cause the thots of the students here in the midst of all this hurry and work to pause a minute and think of one who is ever thinking of them. It is said on the campus that the announcements have arrived and so graduation is that much nearer. The triangle on the campus is being prepared to receive the flag pole that the Class of '22 is to erect. It is beginning to look like an army camp. The warm afternoon had a large crowd out to see the town team play baseball. It was a record crowd and the game was good. Fox Lake caught it again today as the strollers were out en masse. The usual crowd was on hand to meet the 6:18 and her The usual Sunday night callers were at it again and at some places the ten o'clock rules were sure stretched almost to the breaking limit.

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Monday, May 15th—Shipman is out of town and Asst. Prof. Wailes is handling his classes. He is making a good job of it too and the boys are not slowing down on the job. In steam engines class today Prof. Roush announced that the spring inspection trip would be made by the M. E.s. on Thursday and Friday of this week. It is his intention to visit the Dodge Bros. Company at Mishawaka, the Studebaker Co. of South Bend and a concern in Elkhart, making the trip by auto so as not to have to worry about catching trains. The sun was good and warm and the campus classes were well attended. Tonight was free show night at the Croxton and as per usual it was well attended. Bob Phelan made a trip up to the Snyder dorm and gave all the girls but one a free ticket to the show and to show their appreciation they stole his hat and made him go home bare headed. Its a great life so they say. Reports are that Boykin was told he could swing on the gate he was given and alone too. It rained this afternoon and evening which seemed natural after two days of clear weather. It was announced that the graduates invitations would be on sale tomorrow for ten cents per each. Here is where Charlie spends the day with two nice young girls. We caught Skole, the woman hater out today. They get you sooner or later. Gee! it is great to be a prof. and have one of the boys take you to the train to meet her with a machine.

Tuesday, May 16th—Thomas Small suggests to Roush in steam engines this morning ythat he let Elmer teach his classes while he (Roush) was away on the trip. The campus was a bit deserted this morning, that is of girls, the engineers were out in force but the color was lacking. The ball team is beginning to think of their games with Huntington on this Thursday. They are to play a double header at Huntington on Thursday. Being as this is commencement week at that school it will be an all day affair and the boys are looking forward to a good time. Wailes is still at the helm of Shipman's classes and so far has kept them well clear of the rocks.

Band practice this evening was well attended as they are preparing the music for the picnic on Saturday. The surveyors were out today doing over the town. Gaynor and Minor were away out North Wayne Street under the trees. That is the way to do it boys, get way off then sleep. Big Jeff was asked if he was going to the picnic on Saturday



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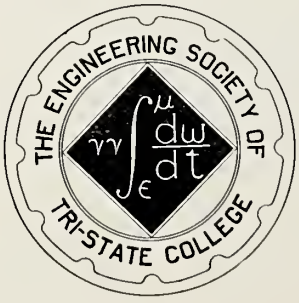
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by a fellow who already had made arrangements to take his (Jeff's) lil lady friend. It is a great world and some people sure like to make it a happy one. Never mind Jeff you just take Layzell's advice and things will surely take a turn for the better. The rain during the evening spoiled the attendance at the dance and the fellows far outnumber their rivals, the fair ones.

Wednesday, May 17th—Roush is having a fine time trying to make final arrangements for the M. Es. trip of Thursday and Friday. In Steam Engines he spoke real plain to Kraut Weyers and when he had finished Barney's cork was up and he inquired if it was a bawling out he was receiving. Some people are so dumb, don't you know. Because of last night's rain the campus classes had to be called off Tough on some who haven't porch swings. Swimming classes seem to be gaining more members as the days roll past. At first there were a few but lately the number has increased so that the railroad track toward Fox Lake looks like Broadway and Forty-Second Street after the shows let out. Carl Bars was around today putting up notices that class dues were due. Another indication that graduation is near.

Prof. Rex Shipman, as we all knew him, is leaving us to take a position with the Truscon Steel Construction Co. All of the student body regret that he is leaving, but wish him the best of success in his new undertaking.

——TSC——

Put It In Rhyme.

The following complaint was received by the claim agent of the Illinois Central railroad at Vicksburg, Miss., from a Franklin county farmer whose hog was killed by an Illinois Central train:

My razorback strolled on your track
A week ago today,
Your 29 came down the line
And snuffed his life away.
You can't blame me; the hog you see
Slipt through a cattle gate,
So kindly pen a check for ten
This debt to liquidate.

This is the reply received by the former:

Old 29 came down the line,
And killed your hog we know
But razorbacks on railroad tracks
Quite often meet with woe.
Therefore my friend we cannot send
The check for which you pine;
Just plant the dead, place o'er his head—
Here lies a foolish swine.

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JOKES

Continued from page 46

Quite Simple, Too.

"Heinie" met "Bill Blakey the other day, and said, "I say, Bill, I watched a wonderful machine at Lampman's this morning."

"And how does it work?" asked Bill.

"Well," was the reply, "by means of a pedal attachment, a fulcrumed lever converts a vertical reciprocating motion into a circular movement. The principal part of the machine is a huge disc that revolves in a vertical plane. Power is applied through the axis of the disc, and work is done on the periphery, and the hardest substance, by mere impact, may be reduced to any shape."

"What is this wonderful machine?" asked Bill.

"A grindstone," was the reply.

—TSC—

Relativity

Frank S—— got his "buzz wagon" stuck in the mud, so his friend watched the wheels to see if they were spinning.

"Why, Frank," said he, "the back ones are sp'nning, but the front ones are getting a good hold."

—TSC—

Soon

AVIATOR—(on being led to court): "But officer, I was ony doing 160 miles an hour."

Aero Cop: "Why, you were delaying the traffic."

—TSC—

HOLY SMOKE—Johnny: "Mother, how old is that lamp?"

Mother: "About three years."

Johnny: "Turn it down then, it's too young to smoke."

—TSC—

A girl from the tribe of the Siouxs
Was often afflicted with Bliouxs
The trouble she found, was down near the ground
Her feet were too big for her Shiouxs.

—TSC—

Bill: "Is it possible to confide a secret in you?"

Alex: "Certainly, I will be as silent as the grave."

Bill: "Well then, I have pressing need for two bucks."

Alex: "Worry not, my friend, it is as if I had heard nothing."

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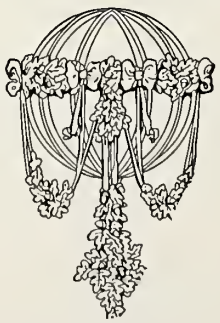
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HOW ABOUT PEACHES AND?—"I have made a plant that produces strawberries and cream."

2nd Farmer: "How?"

1st Farmer: "By grafting a strawberry plant on a milk weed."

—TSC—

Joe Long faced the pitcher,
The horse-hide for to smear.
The first ball pitched, he pasted
It landed clear out — here.

—TSC—

The Librarian wishes to know if we have read "A Firm Foothold," by Standon A. Rock.

—TSC—

"POINTED WIRELESS"—Askit: "What do you think of this scheme of telephoning without wires?"

Tellit: "That's nothing new. My wife has been kicking my shins under the table for the last twenty years."

—TSC—

Dedicated to Harry Hoffman, who recently received a letter from a mysterious girl from Flint, Michigan.

It read something like this:

Harry, put your arms around me
Oh! for Heaven's sake!
A'int you awful glad you found me,
Oh! for Heaven's sake.
Am I not your little beauty?
Are you not my little cutie?
Kiss me, kiss me, sweet Patootie
Oh! for Heaven's sake.

—TSC—

FORCE OF HABIT: "I would love if I dared," said the enthralled young man to the fair ex-telephone operator, "to press some kisses upon those ruby lips."

"Yes?" she said abstractedly, "Number, please?"

—TSC—

Mayer: "I wonder what makes a man always give a woman a diamond engagement ring?"

Baird: "The woman."

—TSC—

Kenneth: 'Can I kiss you?"

Reba: "No, that's wrong."

Kenneth: "Hanged if I see why."

Reba: "You should say, 'May I'."

—TSC—

Doctor (to patient): "It's nothing to worry about—just a little boil on the back of the neck, but you must keep your eye on it."

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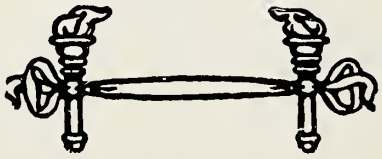
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Northwest Corner of Square C. L. MOTE, Prop.

SINGLE TRACK MIND: Dubb: "When is your daughter thinking of getting married?"

Blubb: "Constantly."

—TSC—

Traveller: "Quick, give me a round trip ticket."

Agent: "Where to?"

Traveller: "Back here, where'd 'ja s'pose."

—TSC—

Staff Photographer: "I've caught a snapshot of the fleeing gambler."

City Editor: "Good—now take a time exposure of the police in pursuit."

—TSC—

CORRECT AT THAT: Prof. Gallaher: "A transparent object is one you can look thru: now give an illustration."

Barry: "A doughnut."

—TSC—

A PRACTICAL GIFT: Wedmore: "What's the idea of giving your fiancee a cigaret case, does she smoke?"

Gayboy: "Oh, no; but she's just about due to break off and send my presents back and I can use it myself."

—TSC—

A RATTLER: One o fthe T. S. C.'s sprouting engineers was coming hobe on the East road about 12 o'clock the other night and just as he got even with the graveard the engine went dead. But he said he got so scared when he saw where he was that he shook the car so badly the durned old Ford thought the motor was running and came clear to town before it discovered it's mistake.

—TSC—

AND A HUMPED BACK—"Inner organs, as well as the outer peculiarities of man, have changed from age to age—witness the now useless appendix, the vanished tail. What do you suppose will be the next change?"

"It may be, if Prohibition lasts long enough, the same process of evolution will provide man with the interior organism of a camel!"

—TSC—

UNBREAKABLE: Said the tramp at the kitchen door: "Couldn't you give me a bite to eat, lady? I was born unlucky."

"Well your luck is holding out," came the reply as the door banged shut.

—TSC—

RIGHT-O: "Who," asked the professor of the student, "was Homer?"

"The guy Babe Ruth knocked out," was the reply.

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GO SAFE—COME TO

ELSTON'S SHOE STORE

Indoor Sports

Clark: "Let's go to the dance tonight."

Mazie: "Why do you like to dance so much?"

Clark: "Oh, for many reasons—I can put my arm around you, draw you up close, feel your soft cheek against mine, and —"

Mazie: "That will do! Let's stay at home and make believe we went to the dance."

—TSC—

Gassed

Chemist Gullette on the job: "I should like very much to have an increase in my wages, sir. I was married yesterday."

Boss: "I'm sorry my good man, but we can't do it. The company does not assume any responsibility for accidents which happen to our employs out side of the laboratory."

—TSC—

Spicer: "If you were attending a dance, and the hall was suddenly plunged into darkness, would you begin to light out?"

Gruenwald: "No I would begin to make connections."

—TSC—

Musical Note

Bundy: "The members of the orchestra must be here at 8 o'clock sharp."

Member: "Sharp?"

Bundy: "That's flat."

—TSC—

Smith: "Why did Cart buy that big magnet?"

Brown: "He heard a certain girl here in town had an iron constitution, and he thought it would attract her to him."

—TSC—

Heard in Watson's: Prof. Bill: "Give me a cheese sandwich."

Prastka: "Sorry, Prof., but the cheese has just run out."

Prof. Bill: "Well why didn't you chase it?"

—TSC—

Lefever: "What would you do if I kissed you?"

Miss Berry: "I would use one hand for insulation and with the other I would create a short circuit by a quick connection against your cheek."

—TSC—

PAST HER. "I do hope that you keep your cows in a pasture," said Mrs. Newleywed, as she paid the milkman.

"Yes'm," replied the milkman, of course, we keep them in pasture."

"I'm so glad," gushed she. "I have been told that pasturized milk is much the best."

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PALACE OF SWEETS

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An English teacher asked the class to write a sentence that meant the same thing as "A wink is as good as a nod to a blind horse." Some answers were good and some were bad, but she nearly fainted when she read this one: "The closing of the right optic is as sufficient as a rapid inclination of the cranium to a sightless quadruped."

——TSC——

In the days of the circuit riders, a preacher was on his way to Angola, but lost his road. Coming upon a small boy fishing, he questioned him and was soon put on the right track.

He rode a short dstance when it suddenly occurred to him that the day was Sunday and that he had not reproved the boy for fishing on the Sabbath. Turning about, he returned and said:

"My litte man, don't you know that this is Sunday and that fishing on Sunday is a sin? Come with me and I will show you the way to Heaven."

The sunburned lad looked up contemptuously at the sky pilot. "Aw, blazes! Why you don't even know the way to Angola."

——TSC——

What They Made

A couple of Tri-State students put in part of last summer's vacation selling books; they were asked by letter what they made.

Their answer was in tabular form:

1. Sixteen miles on a gallon.
2. A reputation for nerve.
3. Twelve towns, and record time in leaving ten of them.
4. A hit with five girls.
5. Enemies with five fellows.
6. $13.82.
7. The acquaintance of seven bulldogs.

——TSC——

Huckster: "I know a good joke about crude oil."

Linquist: "Spring it."

Huckster: "It's not refined."

——TSC——

NEXT THEY'LL CROSS HAM AND EGGS—

Gallaher (With big idea): "Do you know what I am going to do?"

Dad: "No, what?"

Gallaher: "I am going to graft beans, red pepper and tomatoes together and raise ready made Chilli Con Carne."

——TSC——

The dog stood on the railroad track,
He did not hear the whistle.
Toot! Toot! Sausage????

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Prof. Gallaher: Mr. Blakey, tell us something of the occurrence of calcium carbonate in nature."

Blakey: "Well, sir, it's - it's very rare—"

Prof. Gallaher: "Very good, sir, for a guess. But you failed to mention that the Appalachian mountains are composed quite largely of this rare substance.

—TSC—

Prof. Harshman: Explaining why he had to have his car towed in, "It's like this, the engine made staccato reports, then the car changed four keys, and went on four flats, and it ended up with a great pause."

—TSC—

So Shoey

"What is this leathery stuff?"

"Fillet of sole."

"Take it away, waiter, and see if you can't get me a nice tender piece from the upper part of the boot, with the buttons removed."

—TSC—

Boykin: "Say! do you remember that flash light battery called Kwik Light that I bought here the other day?"

Druggist: "Yes, what of it?"

Boykin: "Well, it should be called Quick Finish because it has burned out already."

—TSC—

Fletcher: "How's chances for getting excused for being absent last week."

Prof. Gallaher: "Where were you?"

Fletcher: "I went A W O L to get married."

Prof. Gallaher: "Gee Whiz man, I can't excuse you for that."

—TSC—

Proud Pa (Exhibiting new baby): "Every one says he's just like me."

Friend: "Don't let that worry you as long as the kid is healthy."

—TSC—

Prof. Roush in Physics: "The pressure of bodies at rest is called force. Give an example, Wagner."

Wagner: "The Angola police force."

—TSC—

Polly studied chemistry
He studied long and late.
Polly breathed some chlorine gas
He'll not graduate.

—TSC—

OUGHT TO BE LANCED—She: "What's the bump on the front of the car?"

He: "Oh the radiator just had a boil."



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SUPPOSE HE HAD A PUNCTURE—Little Tommy was absorbed in a picture of Elijah going to heaven in his chariot. Pointing to the halo over his head he exclaimed: "Look, Pop, he's carrying a spare tire."

—TSC—

Smith: "Do you think it will rain?"
Mrs. Smith: "What?"
Smith: "Say yes."
Mrs. Smith: "I said yes the other day and got myself in grief."
Smith: "When?"
Mrs. Smith: "The other day."

—TSC—

The Unvarnished Truth

Sunday School Teacher: "And what is an unclean spirit?"
Youth (hopefully): "A dirty devil, Miss."

—TSC—

Ouch

Grouchy Parent: "No, sir, my daughter shall not marry you."
Suitor: But your daughter wishes to, sir, and she told me just now that you would deny her nothing."
Grouchy Parent: "That, sir, is precisely what I am doing."

—TSC—

O. K. Till Their Fuse Blew Out.

Their meeting was mutual, she being immediately attracted by his magnetic personality, while he was not repelled, for his lips soon made contact wth hers, and the sparking grew intense. He proposed with lightning-like precision, then they were united. Their friends were electrified. Wasn't it shocking?

—TSC—

SMILE AND BE HAPPY

Just a little sunshine
Just a little rain,
Just a little sorrow
Just a little pain;
Just a word of kindness
Just a pleasant smile
It will make you happy
Just try it for awhile,
Just a little rain drop
Just the grains of sand,
Just the hills and valleys,
To make the sea and land;
Just a merry laughter
Just a pleasant thought,
Makes the dark days brighter,
With love and pleasure fraught

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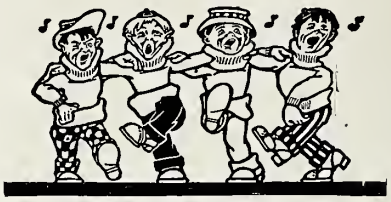
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Pappas & Poulos

OVERSIGHT—"How did you order your steak, Sir?" the waiter asked after a long absence.

"Like a fool, I did it personally," bellowed the patron. "If I'd had any sense I'd have ordered it by mail, a month in advance."

——TSC——

Wilt: "Do you mean to tell me that clock will run eight days without winding?"

Davis: "Yes."

Wilt: "Well, then how long will it run if you wind it?"

TRY THIS ON YOUR GIRL—The chemist has a scene with his wife who finally breaks into tears.

"Your tears don't have any effect on me—for what are they? A mighty small percentage of phosphorus salts and a trace of chloride of Sodium—all the rest is water."

——TSC——

Oh wont you please give me a drink of water, I'm so hungry I don't know where I'm going to sleep tonight.

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